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THE
HORTICULTURAL REGISTER,
AND
GENERAL MAGAZINE.
VOL. I.



BY
JOSEPH PAXTON, F. L. S. H. S.
AND
JOSEPH HARRISON.

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PREFACE.

HAVING, in the introduction, stated the motives, objects, and inducements, which led the Conductors of the Horticultural Register to issue the present publication, it will be unnecessary to make any lengthened remarks in the preface. On viewing the contents of the first volume we trust it will be evident, that we have at least endeavoured, as far as practicable, to carry our promises into effect. Many of the subjects treated upon are of paramount importance: arboriculture has been ably discussed by several Correspondents, whose observations will be found to merit the attention of every experienced and inexperienced Forester. We would particularly recommend to the notice of our readers the growth of grapes in pots, and to those who are troubled with strong clayey land, Mr. Stafford's article on burning clay will be of great advantage; many others are equally deserving attention.

We have to regret the typographical errors which the present volume contains, which from a variety of local disadvantages were rendered unavoidable, but as they are removed, we trust we shall not have a recurrence. It is, however, gratifying to be enabled to state the satisfaction which we have experienced from the fact, that notwithstanding the large number printed, we have been called upon by our Publishers to reprint the first Number to meet the demands of a more extensive circulation. We sincerely thank our friends for their readiness in communicating their sentiments on various subjects connected with Horticulture, &c., and we can assure them that none of their suggestions for improvement shall be disregarded. In consequence of the list of fruits and flowers occupying more room than was contemplated, we have been compelled to omit the list of fruits and flowers that won the most prizes during the year; we hope, however, no great deficiency will be experienced by this omission as all the necessary information is furnished in the list already given.

ERRATA.

Page 30, 3 lines from bottom for "Bambycidæ" read Bombycidæ.

45, line 23, for "sold" read bought.

48, line 28 for "once a month" read once a week.

56, line 4 from bottom, for "one barrowful" read half a barrowful

179, line 21, for "10" read 5.

327, line 8 from bottom, for "valuable" read variable.

374, line 12 from top, for "elytra" read elytra.

375, line 6, for "Moth" read Butterfly.

386, line 2 for "Miatre" read Maître.

386, line 4, for (Sukou, a fig, and phano, show) read Suchoyhantes
(derived from Sukon a fig, and phano, I shew.)

475, line 16 from bottom, for "two feet" read twenty two feet.

448, line 3 from bottom, for "Crawshaws" read Crawnshaws.

557 & 558, for "Chrenberg" read Ehrenberg.

559, line 2 from bottom for "Philomelor" read Philomela.

559, line 7 for "notacilla" read Motacillæ.

Do. 11, for "notoreillæ" read Motacillæ.

Do. do. ten lines from bottom, for "Mortensis" read Nortensis.

Do. 13, for "Ledge Bird" read Sedge Bird.

Do. 7, for "Sibillans" read sibilatrix.

647, line 5, for "Oram" read Oran.

697, line 5, for "experience" read experienced.

739, line 6 from bottom, for "lightening" read lightning.

702, line 11, for "faculty" read facility.

813, line 10, for "than" read that.

588, line 4, for "twenty" read ninety.

591, line 5 from bottom, for "Quod" read Quot.

593, line 14, for "credo" read credé.

634, line 7, for "becomes" read and become.

633, line 2 from bottom, for "heated" read treated.

635, line 18 from bottom, for pænilflora" read pæoniflora.

635, line 9, for "Dranthiflora" read dianthiflora.

31, for "imbucata" read imbricata.

636, line 15, for "sasanqua" read sesanqua.

648, line 21, for "Berfo" read Bufo.

688, line 10 from bottom, for "Woodin" read Woodsii.

689, line 1, for "pauntata" read punctata.

29, for "munda" read mundi.

813, line 2, for "Heney" read Henley.

9, for "wirg" read wiry.

18, from bottom, for "nearly" read "rarely."

THE HORTICULTURAL REGISTER.

JULY 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—SOME IDEAS ON THE EXPENSE OF ERECTING, AND
THE DIFFERENT USES A TWO-LIGHT FRAME MIGHT BE
PUT TO, THROUGHOUT THE YEAR.

INTENDED FOR THE ACCOMMODATION OF PERSONS WITH SMALL GARDENS.

BY JOSEPH PAXTON, F.L.S. AND H.S.

IT will first be necessary to consider the expense of having a two-light frame made, this would of course depend, in a great measure, on the nature of the materials, and the size it was intended to be. The criterion we shall take is, that the frame and lights be made of the best *red deal*; glazed with good glass, and be well painted; the *size* a common one, namely, each light measuring six feet by three: the cost of the wood together with the labour of a carpenter properly making, would amount to £2. 2s. The two lights glazing with good glass, cut to the size of six inches by three, would cost 18s. and giving three coats of white paint, 11s. 3d. which makes the whole cost of the frame to amount to £3. 11s. 3d. Having thus made a rough calculation of the expense attending the erection, the next thing necessary is to point out the various uses it may be put to throughout the year. The material for heating will of course be dung, the expense attending which depends on the situation, means of carriage, and other circumstances, which entirely preclude the possibility of any certain estimate, but in most places dung could be procured in a green state at a very trifling expense. The various

uses to which such a frame could be put throughout the year we must speak of each month separately, and shall therefore commence first with—

JANUARY—Those who have a taste for flowers will now have their frame filled with greenhouse plants, *Camellias*, p. 362, or *Auriculas*, p. 56, which cannot be disposed of otherwise before next month.

FEBRUARY—The *Camellias* or other greenhouse plants may now be taken out of the frame, and placed in such rooms as are convenient to flower them. See pages 362 and 498. Let the *Auriculas*, &c. be placed in a temporary shelter made with a few boards, so that they can be allowed plenty of air, or be fully exposed in fine days, and well covered down at night with mats or litter to preserve them from frost. Then let a bed be made for the frame of prepared horse-dung, about three feet thick in front, and four feet at the back, which will leave a good slope towards the south; set on the frame, and after the bed has settled a day or two, let one of the lights have about a foot thick of light sandy soil put in it; if this cannot be easily procured, mix a large portion of sand with common garden mould, in this plant some whole potatoes of the early kidney sort, which are always best for the first crops, at about the distance of eight inches in the rows, and one foot from row to row; making the rows from the back to the front of the bed, which will admit the sun to the roots when the tops become large; on the top of these potatoes scatter a crop of scarlet radishes, which will be all drawn before the potatoe tops attain any size. Let the other light have some sandy soil or old tan put in it, then plunge a quantity of three years old rhubarb roots as closely as they can be placed to each other, and turn a large pot over each root, to exclude it from the air; if it be the early scarlet variety, the stalks will be ready for use in eight days; three or four large pans or feeders may also be filled with light soil, and sown with light salading: as soon as the seeds begin to show themselves above the soil, sow three or four others to succeed them. When the radishes appear, give as much air as possible without injuring them by either cutting winds or heavy rains. Also prepare a quantity of dung for a cucumber bed, let it be well shaken and thrown in a heap, and watered if necessary, turning it two or three times until it becomes sweetened. Towards the end of the month, when the rhubarb is all gathered, fill the light with the same sort of soil as the other, and plant another crop of kidney potatoes, with a few radishes sown over them as recommended for the last, leaving, however, a space at the front of the frame sufficiently broad to set a row of pans or feeders; sow in one or two of them

seeds of the red solid celery, and in another, a few seeds of Bath coss and other hardy lettuces, the remainder of the pan will do for small salading.

MARCH—As soon as the violent rankness of the dung is properly worked off, begin to make up a cucumber bed of not less thickness than four feet in the front, and five feet at the back; as soon as the radishes are up, take off the frame and place it on the new bed; hoop the radish bed over with mats, to preserve the potatoes and radishes in case of frost; if it is convenient to place a hand-glass over the celery and lettuce pans it will be all the better; fork over the new-made bed occasionally, and when the steam is found to be pretty sweet, put about a bushel of good light maiden soil, mixed with a small portion of pigeons' dung or that of fowls, in the middle of each light, and in the course of two or three days, obtain from some neighbouring garden, two pots of good stopped cucumber plants; if each pot contains three plants, let one be pulled out, as two are quite sufficient for each hill. Make a hole on the summit of the hill, and turn out the plants with the ball entire, place them in the hole, and press the soil about the roots slightly, also give them a sprinkling of water made new milk warm; and if the sun shines bright, take a handful of litter and lay on the glass over the plants, which will sufficiently shelter them until they have become established; earth and treat them in the usual manner, and fruit will be ready to cut by the middle of May.

About the end of **JUNE** or beginning of **JULY**, if the season be fine, cucumbers will have become so common, that perhaps the proprietor may not consider it scarcely worth while to keep the frame over them, especially as they will grow and bear without it; if this is the case, a pit should be formed according to the directions of Mr. Waldron, p. 399, and planted with either grapes, figs, or peaches, set on the frame, and a crop of excellent fruit may be obtained much earlier than in the open air, thus of very superior flavour. Nothing more could be accomplished properly with one frame for that season, as if either grapes or figs were planted in the pit, the frame would be kept in use till October; when the season for sheltering greenhouse plants, &c. for the winter commences, and continues until the following February.

OCTOBER—To prepare the frame for the reception of the greenhouse plants, &c. take it from off the pit, and place it in a warm situation opposite the south, and fully exposed to the sun; raise it from the ground by laying a brick under each of the front corners, and two bricks under each of the back ones, this will give a good bevel

towards the sun; then proceed to place all round the outsides of the frame, not less than a foot thick of soil well trodden down, and raised nearly as high as the top of the frame all round; next, prepare the floor on which the plants are to be placed, first, by laying a good floor of lime scraps; and on the top of that about six inches thick of coal ashes, on which arrange the plants. This floor will effectually prevent worms from penetrating, and also add much to the warmth and cleanliness of the plants. Elevating the frame also is far preferable to setting it upon the ground, as the frame is not so liable to rot, and the more the plants are raised above the level of the surrounding earth, by a thick floor of ashes, &c. the more easily will they be kept from damp.

J. PAXTON.

Chatsworth, June 2nd. 1832.

ARTICLE II.

ON THE DESTRUCTION, OR PREVENTION OF INSECTS, INFESTING PEACH AND NECTARINE TREES.

BY MR. T. H. BAILEY, GARDENER TO WM. EVANS, ESQ. M.P.

Allestree-Hall, near Derby.

THIS being the season when insects of various kinds become troublesome to the gardener, by infesting his Peach and Nectarine Trees, and not seeing in your *Register* any method given to destroy them, I take the liberty to send the following: A system which I have practised for the last ten years with perfect success, seven of which have been in my present situation. In the autumn, after the fruit is all gathered I commence getting off the leaves, a few at a time, as they become ripe, until they are all entirely off. I then unnail the trees, merely leaving as many nails and shreds in the wall as will prevent the wind from breaking the shoots, at the same time clearing away all dead leaves, cobwebs or other rubbish that may have collected about the crevices of the wall with a hand brush, as I consider them complete repositories for the eggs of all kinds of insects. In this loose state I leave them till the March following, when I prune and nail them again to the wall, taking away all the nails and shreds that were left to support the branches in the winter. The next thing I consider essential is, after the blooming season is past, and the

fruit is set, which generally happens about the end of April, or the beginning of May, I take off with my thumb and finger all fore-right and superfluous side shoots, whilst they are but from two to three inches long, being cautious to leave as few as possible more than will furnish the tree with a good supply of young wood for the ensuing season. When the tree is not likely to put forth its branches too luxuriant, I seldom leave more than two or three buds upon the last year's shoot, supposing it to be from twelve to eighteen inches long, observing to leave one as near as I can to the heel, and another at the extremity of each. Those trees I pick over in the fore-part of the day, I wash with pure water, played with the force of a garden engine, to wash down as much as possible all the old relics of bloom, &c. that may be left behind. This should be done early in the afternoon, so that they may have time to get dry before the cool of the evening comes on; strict attention should be paid to looking over the trees once a week, for a short time, and taking off all useless shoots that may have been left, and repeating the washing every two or three days, when the weather is fine. By this means I have always been able to keep them free from insects, and the foliage has assumed a very healthy appearance, and never failed of having a good crop of fruit. I have seen washes of different kinds used, and even quick lime thrown all over the trees, which I consider not only unsightly, but (the lime in particular) very pernicious to the leaves. I never use a composition of any kind, except dusting them over with a little flower of sulphur in case of mildew. Many people (and amongst them some gardeners of old standing) are of opinion that insects come in the air with cold east winds. This notion I class with those of frogs and toads being rained from the clouds, or the smallest insect in nature being produced without a parent, which appears to me as improbable as producing a camel out of a grain of sand. That cold winds may encourage these little animals in a great degree, I do not deny; and when the young shoots are allowed to get to any considerable length before the trees are hand-dressed over, they become a fine cover for the brood of these little creatures. I believe myriads of them will be generated in a very few days, then a little ungenial weather, tending to check the growth of the trees, the numerous insects obtain the mastery, and become difficult to get rid off, whereas if proper attention be paid, and no harbour allowed, the trees remain free, although cold weather may keep them in a slow state of growth.

T. H. BAILEY.

April 14th, 1832.

ARTICLE III.

COMPARATIVE REMARKS ON WOOD AND METAL AS CONDUCTORS OF HEAT.

BY EPHEBICUS HORTICULTOR.

I WAS happy to hear you invite practical men to come forward and state their opinions upon disputed subjects, and pleased to see your invitation complied with. The different sentiments of individuals will be thus brought to bear immediately upon each other, and we shall more easily gain the acquisition of truth, provided those sentiments are established by adequate reasons, and not bare affirmations, said to be the result of experience. I cannot but admire the liberal and candid manner in which some Gardeners have given their opinions, whilst at the same time I must disapprove of the weak reasoning, and hasty inferences of others. As an example, I would allude to the communication of Mr. Cur on Metallic Hothouses—He says, “The chief objection urged against metal is the attraction of heat. *This is mere nonsense*, for if the metal is kept well painted, it attracts no more heat than wood.” This he proved by taking a piece of metal and a piece of wood, both well painted, and placing them against a south wall two feet asunder. He examined them every half hour, and could not perceive that the metal heated one degree faster than the wood; they were also put into water, and the one was heated just as soon as the other. Mr. Cur having detailed his experiment, triumphantly exclaims thus: “So much for the attraction of heat, which Mr. M. Murtrie says injured his pines when they came in contact with the rafters!”

From this experiment, Mr. Cur asserts, that metal and wood are equal conductors of heat if kept well painted, for I suppose their power of conducting heat is what is meant by their attracting heat. This I flatly deny; in the first place, because it is contrary to well known properties of caloric; and secondly, because the experiment in itself is erroneous and quite incapable of supporting the inferences which Mr. Cur has boldly deduced from it; the great error of this experiment lies in Mr. Cur making his observation on the same side he applied the heat, if he had felt the opposite sides he would have found a great difference; by his plunging them over head in water, nothing else could be expected, but that they would become equally heated, as there would be a constant giving and receiving of caloric, till they all three were of a uniform temperature.

Any person may prove Mr. Cur's experiments and assertions to be founded on error, very satisfactorily by the following method:—

Take equal sized rods of iron and wood, both being painted; cover the half of each with wax or tallow, plunging the other half in hot water or sand, and observing which soonest indicates the presence of heat—most assuredly the metal. To show the striking disparity between metal and wood, as conductors of heat, let rods of iron, copper, tin, lead, glass, bone, and wood be treated in the manner stated, it will be observed that the wax melts on each particular rod, in the order of its power of conducting heat—the metals first, and these two in their particular order, then the glass, and last of all the wood. Now, supposing the outside of a metal rafter to be heated to 180 deg. it is evident that the inside will be almost as hot, whereas if a wooden rafter was heated on the outside to the same degree, the inside, of the wood being a bad conductor, would only be at the same temperature of the house; a very little reflection upon this will very easily and truly account for the scorching of Mr. M'Murtrie's pines.

Upon this principle is founded the general complaint against metal houses, called (though unphilosophically) the attraction of heat and cold, for if the external atmosphere is hotter than the internal air of the house, or the rafters heated by the sun's rays, it is evident that a quantity of caloric will be given off to the air in the house, and in this case make it too hot; on the contrary, if the external air is colder, there will be a continued absorption of heat from the inside to the out, till an equilibrium is restored, this of course will make the house too cold.

This then, is what Mr. Cur calls "mere nonsense," and which he, in his own opinion, has proved to be such, but I would with all humility inform Mr. Cur, that before he again summons the assurance to call any opinions "mere nonsense," he will first prove his own to be sound sense; and before he attempts any more to write upon heat, or heat in connection with metallie houses, I would advise him earnestly to study the properties of, and the laws which regulate the science of caloric.

In writing this, I am neither actuated by motives of interest on the one hand, or feelings of prejudice on the other; but solely from a desire of seeing liberality of sentiment triumphing over bigotry, knowledge over ignorance, and truth finally overcoming all misconceptions and errors.

EPHEBICUS HORTICULTOR.

S. S. March 13, 1832.

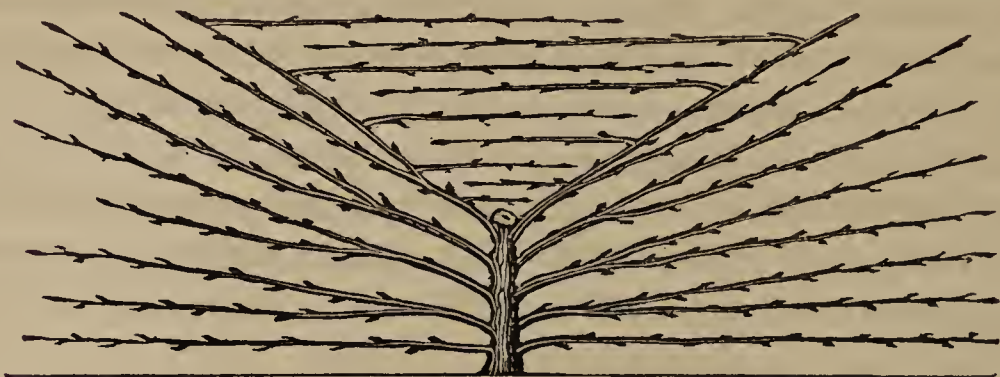
ARTICLE IV.

ON TRAINING TREES.—BY MR. HAYTHORN.

Late Gardener to the Rt. Hon. Lord Middleton, Wollaton-Hall, Notts.

I BEG to lay before your readers a successful method I practised with some old Pear Trees in Wollaton Gardens; they were all trained on the fan fashion, and the wall being too low for them, (only from ten to twelve feet high) they made an exceeding quantity of breast-wood; being full of old spurs, they had become, by repeated cutting, like a clipt hedge, and only bore fruit at the extremities of the side branches. I was very desirous to find out some means to bring them into a bearing state in the centre of the trees, as well as the extremities, without heading them down, not wishing to have much naked wall. I first took out the centre and most upright branches, (fig, 99)

99



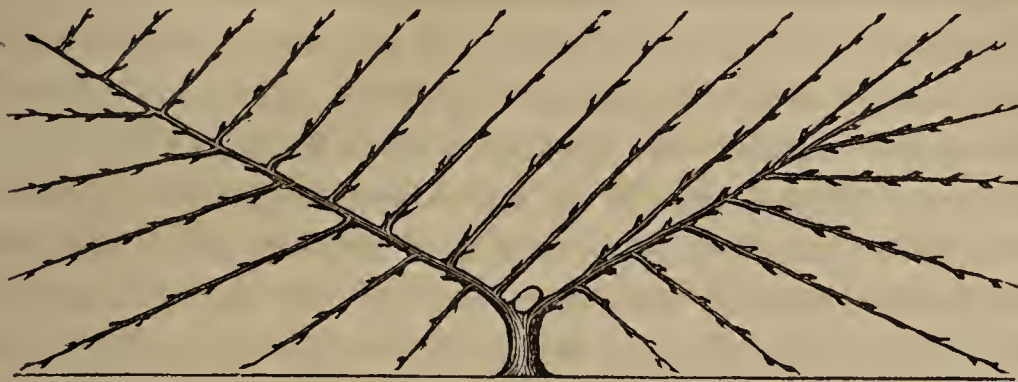
And when the spurs had grown to a sufficient length, and had acquired a degree of hardness, they were trained inwards; these branches bore great plenty of very fine fruit, which induced me to use something of the same means to improve the rest of the trees. I next proceeded to cut away all the other branches, except three on each side, figure 100.

100



The foreright shoots I turned to the wall, intending eventually to take away the top and two bottom branches. But, leaving Wollaton, I had not the opportunity afforded me of accomplishing it; these branches also bore wonderful crops of fruit, and looked exceedingly well. The sorts I chiefly practised upon were *Autumn Bergamot*, *Crassane*, *Gansels Bergamot*, and *Paddington Pear*. A summer Boncretien also, I headed and trained as represented, figure 101.

101



And, although it is considered a very shy bearer, it produced under this treatment very fair crops of fruit, and of an excellent quality. Another tree I headed nearly close to the upright stem, figure 102,

102



And grafted with the Colmar, which is well known to be an excellent fruit for use in February and March, this bore very well, but I found none produce crops equal to those trained as fig. 100. And I am satisfied that any person having trees in a similar condition to those under my care, by adopting the system I have recommended, will be amply rewarded for his pains.

I. HAYTHORN, C. M. H. S.

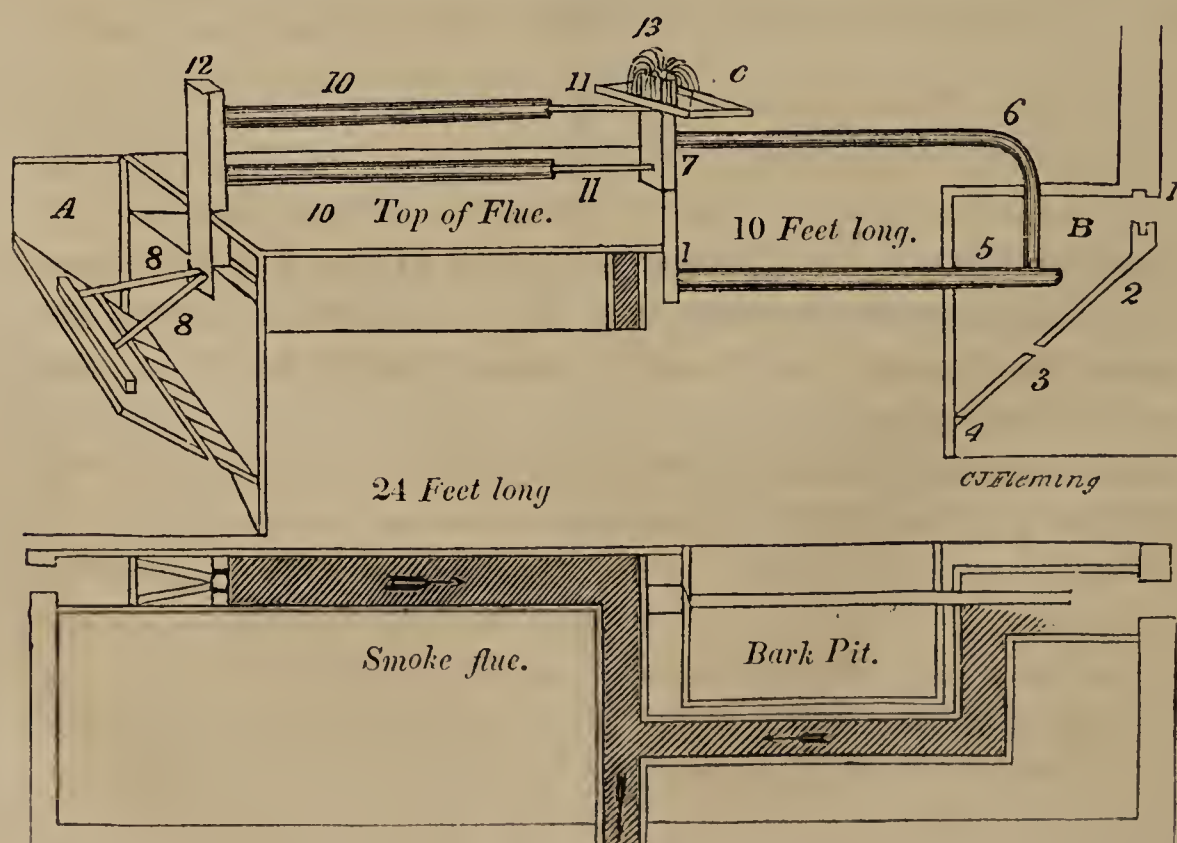
ARTICLE V.

IMPROVED HOT WATER APPARATUS, FOR PITS AND HOUSES.

BY MR. MATTHIAS SAUL, SULYARD-STREET, LANCASTER.

As much difference of opinion exists respecting the size and form of boilers best calculated for hot-water apparatuses, I have been induced to try the experiment of doing entirely without one, by introducing the *pipes* into the fire. The first experiment I made was by placing the lower pipe into the fire so that the water would pass through the flames; next I placed two pipes in the fire so as not to pass over, but be forced back again: this appears to me to have an advantage over the air pipe, which conveyed the water through the fire, as the water is forced in those two pipes backward and forward, which gives a strong motion, working something like a pump, the hot water being forced forward, and the cold forced to the pipes in the fire. It appears also to have another advantage: all matter or sediment which might accumulate in the pipes is entirely prevented by the strong motion. There is a regular stroke of six inches, with a regular fire, but if the heat is increased, it will increase the stroke two or three inches. Perhaps you will consider my apparatus worthy of an early notice in the *Register*, that your readers may be induced to furnish you with tables of the temperature of the water in their different apparatuses, taken twelve feet from the fire.

103



If there be no aperture in the pipe, some other means may be adopted, either to plunge the thermometer into the water of the pipe, or perhaps some of your readers may favour you with a plan of placing it some other way, so as to obtain the correct heat.

My house is 24 feet long, 14 feet wide, and 12 feet high at the back. There are two fire places, one at each end, as will be seen by figure 103 (a b.) (A) is in perspective to show it more clearly ; b is only a section, both fire places are of the same size. (1) is a sliding door, at which the fire is supplied with coals ; (2) an inclined plane two feet six inches long, and fifteen inches broad, made of cast iron ; (3) is the grate fifteen inches by twelve ; the ashes fall through at (4) as fast as they are made, all the coals sliding down to the grate as they burn ; it therefore is of no consequence whether the grate be entirely immoveable or not. The greater part of the smoke also is converted into heat, by being compelled to pass over the flames arising from the fire on the grate, in its road to the flue ; (5) is a single pipe three inches diameter inside, which passes under the bark Pit ; (6) a small return pipe about an inch diameter inside measure ; (7) the Connector, which acts for all the pipes, as never more than one fire is in use at one time. My chief reason for having two fire places is for trying experiments to prove the difference of the two systems ; for, when the fire is burning, the water has to rise into the pipes placed on the top of the flue, and passes round through pipe (5.) The two pipes (8 8) are twenty-one inches long, and one and a half inches diameter inside ; the two pipes (10 10) are eight feet long, and three inches diameter inside ; the pipes (11 11) are two feet long, and one inch diameter inside ; the two Connectors are two and a half inches by four and a half square. (C) is a reservoir for supplying the pipes with water, as it wastes, through a small hole, about the size of a quill, having a plug in it, which prevents an increase of steam, but does not prevent the water from dropping into the reservoir ; also, if the strokes are increased above six inches, and the water thrown over at (13) it is caught in this reservoir, and thus enters again into the pipes. The top (12) is closed, six inches being allowed from the pipe (10) to the top.

The following are tables showing the different degrees of heat the water attained, taken twelve feet from the fire, no fire having been in during the day. April 15th, fire made at seven o'clock in the evening in the fire-place (a.) The thermometer stood at 83 ; in twenty minutes after the fire was kindled, the heat rose to 120 degrees ; in twenty-five minutes, 132 degrees ; 30 minutes, 150 degrees ; 35 minutes, 170 degrees ; 40 minutes, 188 degrees ; 45 minutes, 212. The

next evening a fire was put into the fire-place (b.) The water like the other standing at 83 degrees; in 20 minutes it rose to 132; in 25, to 140; in 30, to 158; in 35, to 164; in 40, to 174; and in 45, to 188 degrees. It took twenty minutes in bringing the water to the boiling point by fire (b.) The following table was taken: April 27th the temperature of the water was 71 degrees; ten pounds of coal were used, besides a few chips with which the fire was kindled in the fire-place (a.) The thermometer was dipped into the Connector (7.) Another placed in the centre of the house stood at 64 degrees, in two hours afterwards it had arisen to 76 degrees; although nothing had been done at the fire, and the next morning it stood at 60 degrees. In five minutes after the fire was made the thermometer in the Connector rose to 75 degrees; in 10 minutes, 78 degrees; in 15 minutes, 85 degrees; in 20 minutes, 91 degrees; in 25, 104; in 30, 128; in 35, 138; in 40, 144; in 45, 154; in 50, 175; in 55, 175; in 55, 188; in 60 minutes, 212 degrees.

M. SAUL.

May 5th, 1832.

FLORICULTURE.

ARTICLE VI.

ON THE CULTIVATION OF HYACINTHS.—BY A SUBSCRIBER.

“Et ferrugineos Hyacinthos.”

OBSERVING that it is your intention to give one or more papers on the cultivation of various flowers and fruits, I beg to send a few remarks on the cultivation of Hyacinths, to which I have for the last four or five years paid particular attention.

Hyacinths will grow in almost any soil, provided it be light and dry; for although they require a good deal of water, yet if the soil be wet the bulbs will decay. I should, however, recommend a rich loam mixed with one-third of sea or river sand.

The beds should be about four feet wide and flat (in the Dutch style,) so that a few hoops and bass mats might be put across them to prevent the frosts and heavy rains from spoiling the blooms. The soil in the beds should be eighteen inches deep, and the bulbs planted in rows about eight inches asunder and about six inches apart. Many of the Gardeners about Manchester have them in pots about

eighteen inches deep and six inches in diameter, and keep them in a hot or greenhouse. The plants may be better protected by this plan, and are much easier to carry about to exhibitions, &c. but I do not think the blooms are any better than those in the beds.

The best time to plant Hyacinths is about the first or second week in November, and when they have done flowering, they should be taken up and put into boxes similar to those used for tulips, and kept in a dry place until the time for planting them again.

A SUBSCRIBER.

Manchester, 3rd May, 1832.

ARTICLE VII.

ON GROWING BALSAMS TO GREAT PERFECTION

BY X. Y. Z.

BALSAMS being general favourites, and grown in almost every cottage window, I beg to submit to their admirers a system, for very much improving their flowering. In page 70 of your *Register* is mentioned a method of growing them to great perfection, by "MR. J. REID, Bridgewater Nursery;" whose plan I follow until the bloom makes its appearance. I then select the best plants, rejecting all the inferior, and, with a pair of grape scissors, clip off all the blooming flowers, and far advanced buds, being careful to cut them off close to the flowers or buds, thereby leaving as much of the flower stalk to the plant as possible. I then shift them into larger pots, and place them in their former situation. By these means the plants throw up their lower branches to great perfection. If the flowers are allowed to remain on the plants as they appear, they injure their growth, and still remain separate; and, being hid by the leaves, are prevented from being seen to advantage. If my method be adopted, the plants will require shifting again in a fortnight, only then clipping off the flowers, but leaving the buds, and, in a short time, they will be entirely covered with one complete mass of flowers, for where the flowers were clipped off, they will throw out three for one; the plants also grow double the strength of those treated in the usual way. To prolong the flowering season, I take off both seed vessels and flowers as soon as they begin to fade. Thus new flowers are produced in succession for a considerable time.

X. Y. Z.

Thorney, Cambridgeshire, April 21st. 1832.

ARTICLE VIII.

ON THE CULTIVATION OF THE ALO'YSIA CITRI'ODORA, OR LEMON PLANT, OUT OF DOORS.—By SAGE.

IN perusing page 473 of the *Horticultural Register*, I find that your querist "SUFFOLK" invokes your numerous Readers to take up their pen to unfold to him the mystery of growing the *Alóysia citriòdora* of Ortega and Loudon (the *Verbena triphylla* of L'Heritier and Don,) vulgarly called the Lemon plant, in the open air. I therefore take up my pen in answer to his solicitations, to disclose to him a method of propagating and cultivating this oderiferous production of the Chilian clime.

The soil this plant requires is composed of the same ingredients, and in the same proportion as I recommended for the *Salvia splendens*, page 437.

PROPAGATION—In the months of May and June choose a warm shady border for the purpose of striking; take out the soil about six inches deep, and fill it with the compost; then take young cuttings off your old stools, displace the leaves for three or four joints, and with a sharp knife cause a slit to pass through the two first joints of the cutting which will cause it to strike root much sooner, then prick them out, make them quite firm, and give them a good watering, covering them close with the hand glass till they begin to grow, when they must be hardened to the open air by degrees.

CULTIVATION—As soon as the cuttings begin to grow, pinch out their hearts and pot them in small pots using the above compost, and repotting them as often as they require it in the succeeding summer and autumn months, in other respects they must be treated as greenhouse plants till the following May, when you must begin to prepare your bed or beds; if they are intended to be grown by themselves, take out the soil from one foot to one foot six inches deep, the width and length may suit your own taste and convenience, fill it up rather above level, to allow for settling, with your prepared soil, permit it to settle for a few days, and then proceed to put out your plants with their balls entire, two feet apart, firming the soil well round them, and giving them a good watering to settle the soil to their roots, and as the aspect should be a south one, they should be shaded for a few days if the sun is powerful; they must also be defended from cold nights, by means of hoops and mats or canvass, or else they will receive a check from which they seldom or ever reco-

ver. By the foregoing method, I have seen the *Alóysia* produce shoots of four and five feet long in the course of a summer, and each shoot almost covered with their simple but delicate blossoms. As this Chilian exotic will not bear the severity of the British winter; by the end of September, the plants must be taken up, most of the soil shaken away, all the large, superfluous, and useless roots cut away, and the shoots cut to a couple of eyes, they must then be repotted in good sized pots in the same sort of soil as before recommended, and treated through the autumn and winter months as a greenhouse plant.

The *Alóysia citriòdora* makes a very agreeable variety among other plants trained against an arbour or a summer house.

SAGE.

ARTICLE IX.

ON CHANGING THE COLOUR OF THE FLOWERS OF THE HYDRA'NGEA HORTE'NSIS.

BY SAGE.

FINDING, on perusing "*RUSTICUS*," in page 11, and "*M. G.*" in page 497, that causing the blossoms of the *Hydránga* to change from pink (their original colour) to blue, is becoming the subject of discussion, I have taken up my pen to become a third person in the controversy, not to depreciate or undervalue the other methods, but to propose one of my own, which is simply this,—instead of cultivating the plants in loam, (the common method) pot them in sandy peat, and water them once or twice a week with a solution of the same, which will be found, after a fair trial, to be equally as efficient as any other method.

SAGE.

ARBORICULTURE.

ARTICLE X.—ON FOREST TIMBER.—BY DODONA.

"Quod homines tot sententiæ."

IT may be a question as to what kinds of trees are likely to be most profitable, when profit is the only object? Much depends upon the nature of the soil. On dry lands, Larch gives the fairest prospects of profit, and what is of no little consequence, it has been found that

the land under Larch carries a beautiful and useful herbage, when nothing that was profitable grew before they were planted. The rapidity of its growth is such, that it has been found by repeated trials, to double in diameter that of the Oak in a given time, and consequently, the bulk being as the squares of their diameters, to produce in the same time four times the quantity of timber; its usual annual increase is from one inch and half to two inches in circumference, so that a tree of thirty years' standing will measure from four to five feet in girth.

It is a matter of deep regret that so little attention should be paid to the growth of the Oak. There was a time when our gentry vied with each other in the cultivation of this tree—when our woods were literally filled with it. Why should not the same laudable predilection now prevail amongst our affluent country gentlemen? especially when the superiority of the English Oak to that of every other country is universally acknowledged.

It is also a source of regret, both to the naturalist and the landholder, that so few registers have been kept or published respecting the growth of trees. In truth, such register will be at all times difficult to procure, on account of the length of time necessary to be passed in amassing facts, before any useful deduction can be drawn. No man loves to enter on a train of reasoning where half a century must be spent in collecting premises. A thousand accidental circumstances may accelerate or retard the growth of one tree which may not occur to any other in the whole plantation; but if the measurement is taken of many, the hurtful and favourable circumstances so counterbalance each other as to produce a fair average result on which the planter may rely. From such tables, an important general conclusion might be drawn, namely, that the planting of timber trees, if the proper species be chosen, is a profitable mode of cropping ground, if not very valuable for the plough. It is one which accumulates yearly in value, without a yearly increase of expense, and will amply repay at the time of cutting down, not only the original cost, but the interest for that sum, and rent during the time of its growth.

As the scientific pruning of forest trees is but little known, such instructions may be easily had, that any intelligent woodman (not inclined to have a will of his own) may execute with perfect safety and at a trifling expense, by which it is hoped the practice will be spread throughout the kingdom, and will never be lost; although the trees will be much improved by annual pruning, both as to growth and quality of timber, yet care should be taken not to over-

prune them. This will always show, when that is the case, by their breaking into numerous unnatural branches, but it may not be so soon observed in the fir tribe, which, however, have generally a stunted appearance for some years afterwards, and sometimes it occasions their death. Perhaps the expense may, with some persons, be the objection to the annual operation; and it is true that all trees, in the course of their growth to perfection, will require very many prunings; but the oftener they are pruned the less they will need at one time, and their value will be always increasing. DODONA.

Knutsford, 1832.

P.S.—When an old hedge is splashed, the labourer should be allowed one penny for every young tree he saves, by which means, the estate will soon be covered with fine growing timber at a very trifling expense. EXPERTO CREDO.

ARTICLE XI.

NOTICES OF FOREST TIMBER.—BY AN ARBORIST.

THE profits of plantations on the borders of fields are very great in Flanders—yielding the value of the cultivated, as well as planted soil in forty years. The shelter afforded improves the climate, prevents evaporation, and the moisture occasioned greatly promotes the growth of herbage. It is laid down as a maxim, “that small gains and quick returns make the dealer rich; but long credit ruins him.” It is a rule, therefore, with that view to cut down the *whole coppice* as soon as it is saleable. The loss of the interest of the money, and the damage which the underwood receives from the drops of the standard, are favourable to this system.

ASH, growing from a level, is generally worth in forty years, from forty shillings to three pounds. Gilpin, in his work on FOREST SCENERY, calls the Oak the *Hercules* of the forest, and the Ash, the *Venus*. The chief characteristic of the one is strength—of the other, elegance. The ash carries its principal stem higher than the oak; its whole appearance is that of lightness, and the looseness of the leaves corresponds with the lightness of the spray; its bloom is one of the most beautiful appearances of vegetation.

The BEECH is the most lovely of all forest trees, whether we consider its smooth rind or bark, its glossy foliage, or graceful pendulous boughs. For fuel, it is the best of any wood we have in this climate, and it is found by far the most powerful to contend with

the western wind. Its leaves, gathered about the fall, and somewhat before they are much frost-bitten, afford the easiest and sweetest mattresses in the world to lay under our quilts instead of straw, and continue perfect for seven or eight years.

The **BIRCH** (the Bark) produces that glutinous, odoriferous, and inflammable gums or oil which the Germans and Russians employ in tanning leather, and which gives it that peculiar odour so hostile to insects. It would be peculiarly calculated, if mixed with butter or grease, to smear sheep and a small quantity of it would be sufficient.

The **SPANISH CHESNUT**, though not so general a grower as ash, is a most excellent wood either for timber or underwood, and wants only to be more known to be in higher estimation; it partakes much of the properties of oak, but excels it in two points:—it grows faster, and the sap part of the timber is firmer, and less corruptible. It will thrive on almost all soils, and in all situations. Many Spanish chesnuts in Derbyshire have fifty feet of clear stem without a bough; these should not be pruned too much, (indeed this may be asserted of all trees,) lest they throw out fresh shoots, which with judicious annual pruning, will scarcely ever happen, namely, the taking out quite close to the stem with a sharp knife, not fewer than three, or more than five of the most vigorous branches, always beginning at the top of the tree. The Romans first procured the chesnut from Thessaly, where it is grown in great abundance by the Grecians. Its longevity is great, as is sufficiently proved by the celebrated specimen on Mount Etna, which has attained the astonishing circumference of two hundred and four feet. It is the tree with which Salvator Rosa delighted to adorn his bold and rugged landscapes. It flourished in the mountain of Calabria, which furnished the scenes of this great artist's pictures.

The progress of the **HORSE CHESNUT** can be traced from parts of Northern Asia to Constantinople, thence to Vienna, and thence to Paris; where the first tree was planted 1615, it was introduced into this country in 1629.

The **CYPRESS**, of all timber, is generally supposed to be the most durable, superior to that of the Cedar itself. The doors of St. Peter's church, at Rome, which were formed of this material in the time of Constantine, showed no sign of decay after the lapse of 1100 years, Pope Eugenius the Tenth, took them down to replace them by gates of brass.

All **FIRS** ought to be felled in summer, because they are then fullest of turpentine and heaviest.

AN ARBORIST.

(To be continued.)

ARTICLE XII.

ON THE IMPROVEMENT OF THE FOREST TREE PLANTATIONS,

(THIRD PAPER,)

By the Author of the Domestic Gardener's Manual.—C. M. H. S.

GENTLEMEN.—In order to render that which remains to be said upon this subject as perspicuous as possible, I must request your readers to re-peruse the few observations that have already been made upon the formation and developement of the buds or gems of plants, at pages 393 and 394 of the *Horticultural Register*. It may now be further remarked that many plants, particularly those of tropical climates, are said to be unfurnished with buds, “the leaf being in them, immediately protruded from the bark.” Perhaps, however, buds, or embryos, tantamount to buds, must be admitted to exist in every plant; for, how otherwise could there be a developement of new parts? The enquiry into this physiological fact is very important, but not immediately connected with the subject under consideration; it will suffice to observe, that buds, where they are visibly present, are generally found to be seated at the axillæ of the leaves, that is, at the angle formed by the base of the leaf stalk, and the stem or branch from which the leaf emerges. Whatever be the precise nature of the bud or embryo, from which the future developement proceeds, certain it is that the bud has its origin and support in juices which have been prepared by those leaves that had previously existed; and, therefore, to the agency of the leaves must be ascribed the commencement and future support of all the vital functions.

If the reader bears in mind that the leaves are proved, by a thousand facts, to be the organs of respiration, the laboratories in which that immature fluid, familiarly known by the appellation of *Sap*, is subjected to the stimulus of light and of air, he will be naturally prepared to ascertain, as far as may be possible, the nature of that fluid, and the course or channels by which it is conveyed from the fibrils of the roots to the extremity of the leaves.

The *Sap*, in the common acceptation of the term, is that simple bland fluid, which is absorbed from the soil, and supposed to be distributed by appropriate vessels throughout the whole vegetable structure. This fluid was, at a former period, believed to *circulate* in the vessels of the plant; and hence the origin of the expression so often misapplied, “the circulation of the sap.” There is reason, however, to believe that, strictly speaking, the sap does not circulate, that is, in a way corresponding with that of the motion of the blood in ani-

mals, for there is no heart, no organised internal viscus, which can propel the vegetable fluid through one set of vessels and receive it back again, by the channels of another set. There exists, particularly in the early spring, an ascending movement in the juices derived from the soil, and this can, in many instances, be distinctly traced. After the developement of the leaves, however, the flow of the sap appears to cease: that is, plants do not, after the leaves are expanded, evince any great tendency to bleed, when they are cut across. The movement of the sap, notwithstanding, is not in reality interrupted; for it increases as the temperature of the season advances, but as the leaves are expiratory organs, a large portion of the more aqueous part of the sap is either carried off, or undergoes a remarkable change by the operations of light and air upon it within their cellular membranous tissue. The ascending sap, as far at least as the taste is capable of determining, can scarcely be distinguished from pure water. It holds however in solution, matter, which renders it liable to undergo speedy fermentation, and to become either acid or putrid. The motion of the sap, strictly speaking, is that of ascent, but it is not through vessels tubular throughout their whole structure that the sap ascends; it is through the cellular substance (parenchyma) of herbaceous plants; and the cellular vessels of the sap-wood (alburnum) of trees, that it passes. These vascular cells are little bladders replete with juices, a familiar example of the structure of which is furnished by the pulp of an orange; they are arranged side by side, but one above another in rather an oblique direction, and, therefore, the sap in vessels so constructed and situated, must flow by a lateral or zigzag motion, whose general direction is one of ascent. This motion depends upon the attractive energy exerted between fluids of different densities, when they are separated by a membranous substance; and constitutes that surprising phenomenon that has been recently discovered, termed by M. Dutrochet, *Endosmosis*, and by some other naturalists, the *penetrativeness* of fluids. The subject would require too much minute enquiry and rigid investigation, to admit of being pursued in the present paper; it will, therefore, suffice to observe that a species of circulation of the sap may still be said to exist, because, to a certain extent, there is a blending of the perfected descending juices, with the raw ascending sap. This fact appears to have been established by the experiments of Mr. Knight; for he discovered that "the specific gravity of the sap of trees increases in the spring in proportion to its distance from the ground; and that saccharine matter, (that is, something in a degree approaching to sugar,) is found at that season in the sap-wood of trees, which contained none

in the winter." Now, this effect could only have been produced by the intermixture of some matter that had previously been prepared by organized vessels above, and remote from the roots.

I have stated the above facts generally, now, because they tend to evince the importance of every healthy portion of the vegetable structure. Without particularizing further, I shall merely observe, that the sap undergoes a complete alteration after it has entered the cellular vessels of the leaves: that, in those organs it is converted by the agency of light and air, from an almost insipid fluid, into one possessing taste, odour, and colour; and that this perfected sap is then propelled or attracted downward into the vessels of the *liber* or inner bark, and becomes the laborated substance termed *cambium*. This matter contains perhaps, all the molecules, or organized particles from which the *alburnum* or sap-wood of trees, and the parts analagous to it, of herbaceous plants are produced.

The deposited sugary matter, spoken of by Mr. Knight, must be prepared in, and returned from, the leaves; and as the inner bark is exterior in its position to that of the sap-wood through which the sap ascends, it is clear to a demonstration, that the proportion of prepared fluid derived from the former and blended with the latter, could be so only by a lateral or side-long progress. In this way then, a circulation may be said to exist; for, there is, first, a positive ascending current through the sap-wood; second, a descending current from the leaves, through the bark, and to the roots; and third, a lateral or connecting current between the vessels of the bark and those of the alburnum.

I do not attempt, in this article, to enter minutely upon an inquiry into the precise nature of the sap vessels—their structure, position, and functions; for, it is one that properly belongs to the science of vegetable physiology: my chief design is to prove, beyond a doubt, the great importance of retaining in their integrity, every healthy portion of the vegetable organization; and to evince that, by lopping off, or depriving a tree or plant of any one of its vessels of supply, or efficient organs of elaboration, a direct and positive act of mutilation is committed, injurious in proportion to its extent, and ruinous if rashly persisted in. Such is the opinion of every impartial observer of nature, who views the operation of the pruner in connection with the philosophy of the vegetable structure. The real phytologist, when witnessing the fresh verdure produced by the amputations of the knife, is not deluded by mere appearances: he knows that nature has been severely taxed; and that those new developments are procured at the expense of much vital energy.

It should however be recollected, that we say nothing against the operations which suit man's convenience ; neither do we impugn his right to prune, train, or decorticate his trees ; we merely require that facts, and not false notions be permitted to guide the judgment ; and therefore, we observe, that if it be the planters's object to let his trees gain strength, to obtain vigorous, healthy growth, and robust old age, the system of pruning out healthy sound wood, ought to be abandoned. If, on the contrary, figure, early maturity, and fruit-bearing be the chief desiderata, pruning and its concomitant operations must, and ought to be persisted in. The simple facts of the case may, I think, be condensed in a few lines, and I offer the remarks which follow to the candid consideration of every philosophical observer of nature.

By pruning and training we indeed *educate* the tree, and make it subservient to our will ; we place it in an unnatural position, spread it abroad, expand and depress its boughs and branches ; nay, we produce an appearance of growth, and expansion of parts by the operations of the knife ; for we compel nature to make attempts at self-preservation by a precocious development of those buds which, for a time, or even a long period of years, might otherwise remain dormant in the stems ; but all these are processes of exhaustion, and not of energy.

The consequences prove this to be the fact, because *fertility* is the invariable result ; and fruit-bearing is the constant attendant upon, as well as the certain effect of, whatever tends to check vigorous or luxuriant growth. We gain fruit, but abate the *vis vitæ* ; we induce precocity, but shorten life : hence, I consider loppings and prunings of every kind to be injurious, where *duration of life* and *bulk of timber* are the objects. Let us not mislead our judgments, but rather acknowledge facts : a tree, I repeat, is not benefitted by prunings, but its fertility, the final object of its being, is doubtless accelerated ; and therefore, whenever we prune or disbud fruit-bearing trees, we do it expressly to obtain fruit-buds within certain prescribed limits, and we gain our ends. But let us not be so unphilosophical as to suppose that we thereby improve the strength and vitality of the tree.

With these remarks I conclude this series of papers ; and I trust that the kindness and good spirit of the far greater number of your readers will induce them to appreciate and justify my motives.

G. I. T.

RURAL AFFAIRS.

ARTICLE XIII.

A DESCRIPTION OF THE HOUSES OF THE PEASANTRY IN THE
WESTERN HIGHLANDS, AND NORTHERN PARTS OF SCOTLAND.

BY THE BRICKLAYER'S LABOURER.

HAVING determined upon seeing Johnny O'Groat's I threw aside the *hod* for a few weeks, and visited North Britain in the year 1826; so the following is no second-handed account of the houses of the peasantry in that part of the country, but that which came under my own observation.

I arrived at Wick in the fishing season, where all was hurry and confusion. I hastened into the country, where I was greatly disappointed to find there were no forest trees whatever, nothing larger than a willow or apple tree, and one or two others. The face of the country presented a bare, bleak appearance to one who had seen the beautiful scenery of England, and that of the South of Scotland. The gardens appeared very scantily furnished with fruit trees; pears, apples, cherries, gooseberries, currants, &c. were chiefly all the fruit they grew. I saw no peaches, or melons, or any other of our choice fruits in any of the gardens which I had visited, nor any hothouse plants worth mentioning; kitchen garden vegetables of every description were, however, in great abundance. But to my subject:—The following observations do not extend to the towns, which, upon the whole, are very tastefully built with a kind of blue, hard stone.

The houses of the small farmers and peasantry, and the manner of erecting them, astonished me more than anything.

The site being chosen, (which by the bye is seldom a good one,) and the trenches for walls being excavated to the depth of two feet, round stones are gathered from the surrounding fields, with which the foundations are laid. The walls are carried up to about three feet with these stones, which are locally termed whinstone, and bound together with clay mortar instead of lime. The walls are then carried up to their respective heights (and two feet thick,) with heavy turf prepared for that purpose. Half-dressed boughs or limbs of trees (imported from Inverness and Ross-shire) are joined together with wooden pins, (such as are used in the building of ships,) to form the scantling of the roof. The rafters form a segment of a circle from the easings, and are continued down the ground on each

side, as the walls are not sufficient to support them ; recesses about nine inches deep being left in the wall for their reception. Tile-lath is then laid on at random, and covered over with very thin turf in regular courses, and finished with straw. The strata of the materials of the roof is secured by heather (heath) ropes, braced down at the easings by lintel-shaped stones, suspended and equally ballanced in the loop of the ropes. No openings are in the external walls except the door-way, which has a cross-barr'd batten door, that is shut up or fastened with a wooden bolt, turned off and on outside by a crooked piece of iron. The light is admitted by a skylight about twelve by sixteen inches. The interior division walls are the same as nature left the stone and turf; and the floors are earthen or clay. Where there is more than one apartment, the walls have openings without doors. A stone stands on edge in the middle of the living room, (if can it be called a room,) which the fire is built against; the smoke ascending through a round hole in the roof, having a funnel, but more generally an old barrel, to conduct it into the atmosphere. Opposite to the fire are recesses for the children's bed; and behind the fire are calves, swine, and hen-roosts; and not unfrequently, a horse or a cow.

In such like houses do the peasantry of that part of our country spend their days; and, although they remain silent on the subject, they are not insensible to the injury they receive from the negligence of their poor, but proud and haughty lairds.

Having remained in that part of the country until the middle of winter, I had an opportunity of witnessing the effects of these damp, disagreeable, and unwholesome houses; and were the inhabitants not a hardy race of people, they never could exist in such cold, miserable hovels. The severe bleak winds from the north, without any trees to afford shelter, induce them to build their habitations in low glens or valleys, which is both uncomfortable and dangerous in stormy winters. The wind drives the snow from the heights into the lower parts in the night time, and I have seen the poor cottagers dug out in the morning by their neighbours.

The houses of the peasantry in that part of the country might be improved, or rebuilt at a very little expense. Stone is abundant in almost every parish; and in some places it can even be procured by digging twelve or twenty feet deep. The shore dues are exceedingly low, and therefore Memel and American timbers might be had cheaper than in Edinburgh or London. There is a pavement quarry in Halkirk in the county of Caithness, the best in Scotland, which might supply them with large flag-stones to form their roof: this

would make a most substantial covering, which is necessary in these parts, as the winds are so very high at times, that I have seen a roof, with the exception of the rafters, completely lifted off and crushed to the ground.

It is but justice to mention here, that the Highland Society has done a great deal for that part of the country; and what is still more gratifying, they are continuing their exertions. Poverty may plead an excuse for many of the landed proprietors there; but did they, in addition to their present Institutions, form Associations for improving the conditions of the labouring classes, (such as that established in Sussex,) then the end we have in view would be much easier accomplished.

THE BRICKLAYER'S LABOURER.

London, 23rd February, 1833.

NATURAL HISTORY.

ARTICLE XIV.

ON THE STUDY OF ENTOMOLOGY—BY RUSTICUS.

(Continued from p. 420.)

Subsection 2nd—HYDRADEPHAGA; Water Beetles, Toe-Biters.

Family VIII. —DYTICI'DÆ; 12 genera.

Most of these grow to a considerable size, and are capable of biting very severely; they all inhabit stagnant pools, from whence they issue in the evenings, to make excursions on the wing: the *larvæ* have each six eyes, and are exceedingly rapacious, feeding on all water insects that come within their reach, as well as one another.

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|---------------|-----------------|---------------|
| 1. Hæliplus, | 5. Hydrophòrus, | 9. Hydáticus, |
| 2. Pælòbius, | 6. Notèrus, | 10. Dy'ticus, |
| 3. Hyphìdrus, | 7. Laccophílus, | 11. Cybíster, |
| 4. Hygròtus, | 8. Colymbètes, | 12. Acílius. |

Family IX.—Gyrinidæ.—1 Genus.—1 *Gyrinus*.

The most common species in this genus is the *Gyrinus natátor*, the little shining waterflea or whirl-wig, which may be seen skimming about on the surface of almost every stagnant pool, this remarkable insect is possessed of two pairs of eyes; one pair being situated on the lower part of the forehead adapted for seeing in the water, and the other on the upper part of the forehead for seeing in the air; the *larvæ*, like those of the *Dyticidæ*, are supposed to be possessed of six eyes each, but De Geer could not properly ascertain.

Subsection 3rd.—PHILYDRIDA ; Amphibious Beetles, or such as haunt water.

Family X.—PARNIDÆ, 1 Genus, 1 *Parnus*.

Family XI.—HETERO CERIDÆ ; 1 Genus ; 1 *Heterocerus*.

Family XII.—LIMNIIDÆ ; 2 Genera.

1 Georyssus ; 2 Elmis.

Family XIII.—HELOPHÓRIDÆ ; 4 Genera.

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|----------------|----------------|
| 1. Hydòchus, | 3. Ochthèbius, |
| 2. Helophòrus, | 4. Hydr'æna. |

Family XIV.—HYDROPHÍLIDÆ ; 6 Genera.

- | | |
|-----------------|---------------|
| 1. Limnèbius. | 4. Spércheus, |
| 2. Hydròus, | 5. Beròsus, |
| 3. Hydróphilus, | 6. Hydròbius. |

Family XV.—SPHÆRID'IDIÆ ; 2 Genera.

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|------------|----------------|
| 1. Cécyon, | 2. Sphærídium. |
|------------|----------------|

Family XVI.—ANISOTOMIDÆ ; 9 Genera.

- | | | |
|----------------|----------------|--------------------------|
| 1. Tritòma, | 4. Leiòdes, | 7. Clypeaster |
| 2. Phalácrus, | 5. Agathídium, | 8. Anisotoma, Kirby MSS. |
| 3. Ephístemus, | 6. Clámbus, | 9. Scaphidium, Marsh. |

Subsection 4th.—NECROPHAGA ; Beetles that feed on Carrion, Putrid Wood, and Fungusis.

Family XVII.—SCAPHIDIDÆ ; 6 Genera.

- | | | |
|----------------|----------------|-------------|
| 1. Scaphídium, | 3. Myl'æchus, | 5. Cátops, |
| 2. Scaphisòma, | 4. Homaphàgus, | 6. Cholèva. |

Family XVIII.—SILPHIDÆ ; 7 Genera.

- | | | |
|-----------------|----------------|---------------|
| 1. Necrophòrus, | 3. Oiceoptóma, | 5. Phosphùga, |
| 2. Necròdes, | 4. Sílpha, | 6. Agy'rtes, |
| | | 7. Péltis. |

The species of more than ordinary interest, in this family are the Necrophòrus Sepúltor, and Vespillo, or Burying Beetles, which may be met with wherever there is putrid flesh on the ground ; they are said to be possessed of extraordinary powers of smelling their food at a great distance. Mr. Rennie informs us in *Insect Miscellanies*,

p. 46, that he once observed a pair of those useful insects, the N. Sepultor, in Copenhagen Fields, flying at the height of about twenty feet from the ground, when they suddenly descended, and crept under the body of a dead frog hid amongst the grass, although this was so dried up with the extreme heat of the weather, (1825) that little or no smell could be perceived, when standing close to the place; it was in the forenoon when the sun was bright and powerful, a time when scents are much less diffusible than in the cool of a dewy evening. M. Gleditsch also gives in the *Acts of the Berlin Society, for 1752*, some very interesting accounts of the labours of the N. Vespillo: "He had often remarked that dead moles when laid upon the ground, especially if upon loose earth, were almost sure to disappear in the course of two or three days, often of twelve hours. To ascertain the cause, he placed a mole upon one of the beds in his garden; it had vanished by the third morning, and on digging where it had been laid, he found it buried to the depth of three inches, and under it four beetles, which seemed to have been the agents of this singular inhumation. Not perceiving any thing in the mole he buried it again; and on examining it at the end of six days, he found it swarming with maggots, apparently the issue of the beetles, which M. Gleditsch now naturally concluded had buried the carcass for the food of the future young. To determine these points more clearly, he put four of these insects into a glass vessel half filled with earth and properly secured, and upon the surface of the earth two frogs; in less than twelve hours, one of the frogs was interred by two of these beetles; the other two ran about the whole of the day, as if measuring the dimensions of the remaining corpse, which on the third day was also found buried;" this was accompanied with many other interesting experiments of a similar character. Mr. Rennie also tells us, that "In the summer of 1826, he found on Putney Heath, in Surrey, four of these beetles hard at work in burying a dead crow precisely in the manner described by M. Gleditsch." And Messrs. Kirby and Spence in their *Introduction to Entomology*, p. 515, notice a very curious fact of these insects. "A friend of M. Gleditsch being desirous of drying a dead toad, fixed it to the top of a piece of wood, which he stuck in the ground, but a short time afterwards he found that a body of these indefatigable little sextons, had circumvented him, in spite of his precaution; not being able to reach the toad, they had undermined the stick until it fell, and then buried both the stick and the toad.

RUSTICUS.

(To be continued.)



ARTICLE XV.

SURREY ZOOLOGICAL GARDENS, MANOR PLACE, WALWORTH.

CONSIDERING the site on which this garden is formed, it is astonishing how rapidly it has been brought to its present condition. At page 220 of our *Register*, a correspondent noticed that Mr. Cross had availed himself of the valuable services of Mr. Phillips, the landscape planter, and under his judicious and excellent superintendence it soon appeared in another form; for (although in July last the grounds were nothing but swampy meadows, except a small kitchen garden, and another little plot near the house cultivated partly as an orchard, and partly as a flower garden, and after the elapse of about three weeks,) they were got into that state as to induce Mr. Cross to open them, and the visitors who paid for their entrance averaged from five hundred to a thousand persons daily. A late notice of them says, that “the grounds possess some of the most beautiful features of landscape gardening.” This we conceive to be correct; for some of the views are extensive as well as very beautiful, particularly if the view be taken standing at (26 fig. 105) it is exceeding-grand and imposing, perhaps not to be equalled in any garden, either public or private, for many miles round London. One great object of Mr. Phillips was to give a bolder style than is seen at the Regent’s Park Gardens. The enterprising spirit and indefatigable labours of Mr. Cross deserve the highest praise; he has had a beautiful lodge entrance (1) fig. 105, erected, opening into Penton Place close to Manor Place, (2,) to the right of this entrance are rooms appropriated to birds on sale (23,) and a short distance from them a neat enclosure for pheasants (3.) A quantity of curious water-fowls occupy a bason on the grass (4.) The monkeys also enjoy a spe-

cies of perpetual summer, and show their little tricks to advantage in all weathers, in a glass conservatory (5) as was noticed at p. 220 of our *Register*; attached to this monkey conservatory is a commo-

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dious eagle house (6;) there are also two more enclosures for pheasants (7, 13;) (8) is gentlemen's closets, (9) confectionary and cloak room, (10) is a small pond for alligators, and then the visitor

comes to one of the most imposing structures of the age—the glass conservatory for tropical animals, birds, and plants (11;) this capacious building is near three hundred feet in circumference, and is most judiciously arranged. The animals occupy a series of cages or compartments forming a circle in the centre of the building; exterior to these is a colonade which supports the roof, here are numerous cages of interesting birds hung and otherwise fixed; there is then an open area for the spectators to parade, which is bordered with a stream of water for exotic fishes; this novel edifice has entirely originated with Mr. Phillips, and at once proves his abilities and ingenuity. The ruins for eagles, (18) which perhaps has been rarely surpassed even where expense has been no object, was merely built out of such rubbish as came in his way, for, it must be understood, the question with Mr. Phillips was not how *well* but how *cheap* he could transform this marsh into a pleasure ground. The octagonal building (12) surrounded by paddocks, is filled with many rare specimens of foreign domestic animals; the seal occupies a small pond (14) not far from the large conservatory, near to which is the elephant pond, (15) and on the site for the elephant house (16) there is also a cave for the tortoise, and a partition for the armadillos (17.) The hermitage and boat-house (19) stands on the edge of one of the most interesting lakes in the vicinity of London, in this water is an island (20) for monkeys; (21) is the site for the bear pit; (22) is a lodge entrance from Kennington, near to which is a park (25) enclosed for deer on sale; (24) is the camel house; where there are dotted lines forest trees are planted, each of which is labelled, with it its Latin and English name, together with the country of which it is a native, and a more interesting walk, as an Arboretum, perhaps has not hitherto been formed. The garden contains fifteen acres, about three of which is covered with water. The whole is the property of Mr. Cross, who, we must say, certainly deserves the most distinguished patronage.

PART II.

REVIEWS AND EXTRACTS.

EXTRACTS.

HORTICULTURE INTELLIGENCE.

MODE OF PRESERVING APPLES.—Perhaps every thing that can be done may be accomplished with a good fruit room and a dry cellar; but where these cannot be had, the following method will be found to answer: The apples are taken from the tree in the autumn in a pretty ripe state, they are then carried to a cool outhouse, and piled in a sort of oblong heap against the wall upon some wheat straw. The fruit may lie in this state about a fortnight, and then packed in large packing boxes, with ferns or brakens, (fronds of *Pteris aquilina*) which have been previously well dried, placing them in the order of a layer of ferns and a layer of apples alternately until the boxes are full; the lids are then fastened down, and the boxes carried to a border of a northern exposure, each being set upon two cross pieces of wood to keep it free of the damp surface. They are then covered with straw and earth, and are allowed to remain until required; one box being lifted at a time as wanted for use.—W. MORISON.—*Cal. Hort. Trans.*

ON THE PRESERVATION OF GRAPES AND PLUMS.—At Berlin, grapes are preserved by cutting the bunch when ripe with about one foot of the wood, above and below the footstalk. The ends of the wood are dipped in hot pitch to keep in the moisture, and the bunch is then hung up in a dry place. The Quetch plum is preserved till March by the following method:—Gather them when perfectly ripe and dry; put them in a glass jar or bottle, closely tied up, and pitched so as to exclude the air; and then bury them in dry soil seven or eight feet deep, so as to be out of the reach of any change in temperature or moisture. When taken out they must be used immediately.—*Ib.*

ON THE VARIETIES OF THE PINE APPLE.—(Continued from page 515.)—**10. GREEN JAVA**, called also, the *Narrow-leaved Java*.—Leaves long, broad, palish green, free from any tinge of brown or purple, with small feeble spines. Flowers large, dark bluish purple. Fruit oval, sometimes tapering a little to the summit, weighing from four to five pounds; before ripening, light green, and lightly covered with meal, when ripe, of a fine clear citron colour. Pips rather above the middle size, and flat. Scales cover full one-third of the pips, and in long narrow points. Flesh pale yellow, rather soft, juicy, and melting with a rich pleasant acid. Crown middle sized, leaves not very numerous.

11. BLACK JAMAICA, Montserrat of Speechly, black Barbadoes of some, copper-coloured and tawny of Hort. Soc. Cat. No. 14—Leaves rather long and narrow, slightly spreading, and somewhat keel-shaped, of a dull green, tinged with a dark brown colour, and rather mealy. Spines short, regular, and thinly set. Flowers purple. Fruit oval, not much lengthened, rather compressed at

the ends, colour before ripening very dark olive, afterwards a dark orange, inclining to that of copper. Pips roundish, irregularly angular, about the middle size, rather prominent at the margins, and concave in the centre. Scales covering one-third of the pips and terminating in lengthened points. Flesh pale yellow, opaque, firm, slightly stringy, very rich, juicy, and high-flavoured. Crown large, spreading, and very mealy. A pine of great excellence weighing from three to five pounds; richly meriting the character given it by Speechly, namely, that in the autumnal months, and even during winter, it produces a fruit much more swelled and perfect than any of the other sorts.

12. ORANGE SUGAR-LOAF.—Leaves rather long and narrow, somewhat keel-shaped and a little spreading, of a dull green, considerably tinged with dark brown, and rather mealy; spines short, and thinly set and regular. Flowers pale purple. Fruit cylindrical, before ripening very dark olive, somewhat shining and slightly mealy; when ripe, deep yellow, inclining to an orange colour. Pips large and flat. Scales covering about half the pips, and ending in short, blunt, reflexed points. Flesh pale yellow, almost destitute of fibre, very juicy and sweet, with a rich highly-flavoured acid. Crown middle sized, leaves numerous and spreading.

13. DOWNTON HAVANNAH, called also Knight's Seedling. It differs nothing from the Smooth Havannah, except having small spines on the edges of the leaves.

14. NEW JAMAICA. Black Jamaica *Speechly*. New Black Jamaica, Hort. Soc. Cat. No. 43. St. Kitts, Hort. Soc. Cat. No. 73, Brown Antigua, English Globe, and Montserrat of many English gardens, St. Vincent's Sugar-Loaf, and Mr. Rae's St. Vincent, in St. Vincent's.—This differs from the Black Jamaica in the colour of the leaf, which is rather paler, and in the margins being slightly reflexed. The fruit is pyramidal and slightly mealy. The colour black, on approaching maturity changing to that of a dark orange. Pips differ from those of this variety by being half covered with the scales, and rather more prominent and angular. Flesh pale yellow, somewhat opaque, slightly fibrous, sweet and rather acid, very pleasant, rich and highly flavoured. Crown middle sized, leaves rather numerous and spreading. An excellent summer fruit, but is apt to become deformed during the winter months, it generally weighs from three to four pounds.

15. NEW DEMERARA. Harrison's New, of some gardens.—Leaves strong, very broad and rather long, slightly keel-shaped and spreading, of a dull green colour, and tinged with reddish brown on the upper surface, the lower surface is remarkably mealy, a feature by which it may be readily distinguished. Spines rather minute and regular. Flowers lilae. Fruit globular, depressed at each end, of a dark green colour before ripening, afterwards a dull ochre tinged with red; very mealy on the centre part of the pips, which are large and prominent. Scales covering half the pips and ending in narrow lengthened points. Flesh white and firm, very juicy, but not highly-flavoured. Crown large, leaves rather long and erect.—*Hort. Trans. vol. i. part 1, Second Series.*

TO AVOID THE DANGER OF RANK STEAM FROM DUNG LININGS INJURING PLANTS IN FRAMES.—Instead of filling the lights with glass in the usual way, have two blank squares of wood in the top of the lights, in the centre of which is a hole cut one inch in diameter, and covered with a piece of tin or lead, so fastened as to turn with ease; these are opened as air may be required, either by day or night.—W. PRESTON.—*Gard. Mag.*

ON CANKER IN FRUIT TREES.—The nature of the sap or juices of one sort of stock, may suit particular sorts of grafts, and another sort other kinds. The nature of the stock, therefore, is more particularly the cause of canker in fruit trees. However, there are other causes besides this, as for instance, in taking up and transplanting trees, the roots are often injured in a great degree by being much reduced; and should the top not be pruned in proportion, the plant usually becomes bark-bound for want of nourishment, whereby it languishes, and canker generally ensues. Bruises are also often a cause of canker. Jargonelle pear trees are often affected by a different kind of canker. Rubbing over the diseased part slightly with hogs-lard, is often found beneficial to Jargonelle trees. When a tree is wished to be permanently established, either against a wall or as a standard, sowing two or three seeds of the crab sort in the selected spot is to be recommended. If more than one plant grows, leave the best, and pull away the others. Stocks produced on the spot where they are destined to remain, will probably be fit for working the third year, or at most the fourth. This method may appear tedious at first view, but in a few years it will fully compensate for the delay. The composition to be used as a cure for canker, is made of one pound of pitch, half a pound of rosin, half a pound of venice turpentine, four ounces of bees' wax, two ounces of hogs-lard, or a gill of whale oil, heated over a fire until the whole is incorporated with a liquid matter. After cleaning out the diseased part wash it with a strong solution of soft soap, and brush it well, cover the orifice or part with strong paper or sheep's skin, and with the composition warm and a painter's brush, cover over all round the wound on the tree. When canker appears in forest trees, it is, in a great measure, occasioned by the injudicious manner in which the different species are arranged. Willows and alders ought to be destined for a bog; oaks and ash for a strong soil. Larch should be more elevated.

The juice (sap) appears to be very superabundant, yet it is most applicable for a great many kinds. The juice of the crab is most congenial in a general view to grafts of all sorts of apples.—A. DIACK.—*Cal. Hort. Soc.*

FLORICULTURAL INTELLIGENCE.

NEW AND VERY RARE PLANTS, figured in the Botanical Periodicals for June.—

CLASS I.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

FERNSTRÖMIACEÆ, *Mirbel*; CAMELLIÆ, *Jussieu*.

CAMELLIA *japonica*; var. *Reevesiana*: Mr. Reeves's crimson Camellia.—Flowers double, very rich crimson, but liable to variation. Native of China, from whence it was imported by Mr. Tate; it is named in compliment to Mr. Reeves, a zealous Botanical collector in the celestial empire.—*Ed. Bot. Reg.*

MYRTACEÆ.

COUROUPITA *Guianensis*. Guiana Couroupita, or Cannon-Ball Tree. A tree growing to a vast size, one of the greatest ornaments of the dense forests of

Cayenne.—Flowers yellowish on the outside, and crimson-lilac within, large and very beautiful, and endowed with the most delicious odour, the fruit grows to a remarkable size, and according to Mr. Guïlding, so nearly resembles the cannon shell, that one might easily at first sight, imagine that a company of artillery had bivouacked in its shade; hence the plant is called by the colonists cannon-ball tree, and according to the poetical language of M. Descourlitz, the noise the fruit makes in falling, affords an additional reason for the name; the shell is used in South America for domestic purposes as the calabash. The pulp contains sugar, gum, malic, citric, and tartaric acids, and is employed to afford a refreshing drink in fevers; but in the perfectly ripe state Mr. Guilding says, “it exceeds whatever is filthy, stinking, and abominable in nature; yet the scent is remarkably vinous and so durable that on examining some portions of the fruit that had been preserved in rum for two or three years, the native odour of the plant was so strong as to render the apartment almost insupportable. Insects revel in this disgusting and putrid pulp, Coleoptera (Beetles) and Forficulæ (Earwigs) feed upon it, while the Formicæ (Ants) find a shelter in the hollow of the shell.—*Botanical Magazine*.

B'ÆCKEA *saxicòla*. Stony Bæckeæ. A low shrub, prostrate in its wild state, but when cultivated, erect, with virgate branches.—Flowers small, pale rose-coloured. Native of bare granite rocks, on the south-west coast of Australia, from whence it was introduced by Mr. Allan Cunningham. Culture—It requires the shelter of the greenhouse, and the usual treatment of New Holland plants in general.—*Bot. Mag.*

PITTOSPÒREÆ.

PITTOSPÒRUM *cornifòlium*. Cornel-leaved Pittosporum.—Flowers of a reddish brown colour. Native of New Zealand, where it was discovered by Mr. A. Cunningham, in dark humid woods by the rivers; it was uniformly found growing (parasitically) on tufts of *Asteliæ* (*A. Banksii*.) and upon the trunks and principal branches of the larger timber trees, particularly upon the “Kackatèa” or *Dacr'yidium taxifòlium* of Lambert. Culture—It thrives in the greenhouse, we suppose in loam and peat, and may be propagated by cuttings.—*Bot. Reg.*

COMPÒSITÆ.

CHRYSA'NTHEMUM *indicum*; var. plenum. Double yellow Indian Chrysanthemum.—This variety is not much cultivated, because it seldom flowers, except after very hot and dry summers; but when its blossoms are produced they form a striking addition to the few flowers December will produce, and are therefore an acquisition.—*Bot. Reg.*

VERBEN'ACEÆ, Juss. SELAGINEÆ, Choisy.

SEL'AGO *Gillii*. Dr. Gill's Selago.—Flowers lilac. Native of the Cape of Good Hope. Introduced by Dr. Beck. Culture—A greenhouse plant, requiring a good airy situation in winter; but during summer well adapted for the open border, propagated by ripened cuttings struck under a bell glass.—*Bot. Reg.*

ERICEÆ.

RHODODE'NDRON *album*. White. Nepaul Rhododendron.—This handsome

plant was raised from seed by Mr. Anderson, seven years ago, but only flowered for the first time in April last.—Flowers beautiful white, spotted in the inside with beautiful purple, and red spots; first discovered by D. D. Fran. Hamilton, at Narainhetty on a mountain by itself, on the 3rd of March, 1803. Culture—As the present plant is said to grow on a cold mountain, it probably stands well in the open air, particularly if planted on a north border; it is said the Rev. T. Garnier of Bishop's Stoke, near Winchester, has plants of *R. arboreum* in a north border, that have succeeded without any covering, and have not been at all injured.—*Brit. Flower Gard.*

CORDIACEÆ.

CÓRDIA grandiflora. Large flowered Cordia.—Flowers pale lilac, and very handsome. Since the drawing was made in August, 1828, in the stove of Mr. Lee of Hammersmith, the plant has disappeared, and no specimen having been preserved, nothing is known relative to it beyond what the drawing affords.—*Bot. Reg.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

HABENARIA cordata. Heart-leaved Habenaria.—Flowers yellowish green and highly fragrant, especially in the evening. Native of the rocks on the southern shores of the Island of Madeira, where it was discovered by the Rev. Mr. Lowe. Culture—The plants have hitherto been kept in a pot of peat and loam, in an airy part of the greenhouse.—*Bot. Mag.*

TRITONIA.

TRITONIA odòrata. Sweet-scented Tritonia.—Flowers yellow and very fragrant. Native of the Cape of Good Hope, from whence it has been lately introduced. Culture—Messrs. Loddiges have preserved it safely in a narrow border, close to the wall, in front of the stove, where the ground scarcely ever freezes in winter, in which this, as well as most of the Cape plants of the same family, flower and grow much better than when potted and kept in a greenhouse. The soil should be sandy peat. It increases by offsets.—*Lodd. Bot. Cat.*

AMARYLLIDEÆ.

AJAX albicans. Greatest Spanish white Ajax.—This rare and handsome species appears to have been lost to our gardens for many years—Flowers pale yellow and large. Native of Spain, and has lately been introduced both from Holland and Spain. Culture—The present species as well as other strong growing ones, thrives best in a rich sandy loam; and if there is a little dry rotten dung mixed with it, they will thrive all the better and attain a greater height. The greater part of this genus seed freely, particularly if a little pains be taken, or the bees are plentiful at the time they are in flower.—*Brit. Fl. Gar.*

BROMELIACEÆ.

BILLEBERGIA bicolor. Two-coloured Billbergia.—Flowers purplish scarlet and yellow. Native of the dense forests of Brazil, rooting in the rough bark of the trees; it has been lately introduced.—*Lodd. Bot. Cat.* Culture—It will grow in the stove, potted in light rich mould; and may be propagated by suckers.

IRI'DEÆ.

HERMODACTYLUS longifolius. Long-leaved Snakes-head (fig. 106.)—This singular plant was brought from Naples about three years ago, by Mr. Charles Ridgway, under the name of *Iris tuberosa*, together with two other species, the

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H. repens, creeping-rooted Snakes-head, and *H. bispathæus*, the common Snakes-head.—Flowers a perianthium with a short tube, six parted, three large outer segments about three inches long, narrowing to the base, curved a little inwards from the two sides, of a green colour, slightly tinged with purple nearly to the bend, and of a pale yellow line extending down the centre to the base; at the bend they are considerably curved backwards, and two greenish white marks in the bend, edged with dark purple, from these to a point of a bright velvet on the upper side edged with green; back green, and hollow on the recurved part; three small inner segments very small, and curved inwards at the base, and a considerable way up, so as to make them hollow.—*Brit. Flower Garden*. Culture—It thrives in the open border in sandy loam mixed with peat, and is propagated by offsets.

AMARYLLIDÆ.

EU'RYCLES *Cunninghāmii*. Mr. Cunningham's Eurycles. A bulbous rooted plant worthy of cultivation.—Flowers white. Native of New Holland. Introduced under the name of *Calostemma*. Culture—A greenhouse plant thriving in light loam, and propagated by seeds or offsets.—*Bot. Reg.*

CHOICE, OR BEAUTIFUL PLANTS FLOWERING THIS MONTH,

AT MESSRS. LODDIGES AND SONS, HACKNEY.

STOVE.

Justícia venústa
Jatròpha panduræfòlia
 Oncidium bifolium
 ———— pumílum
Zàmia pymæa
 —— débilis
Sabál minor
Calánthe veratrifòlia
Rosc'œa purpurea
Epidéndron cochleàtum
 ———— elongàtum
 ———— ellipticum

GREENHOUSE.

Andrómeda buxifòlia
Anthocércis littòrea
Dracophy'llum gracie
 ———— Capitàtum
Kálmia hirsùta
Marsdenia suaveòlens
Alstrœmèria pulchèlla
 ———— bicolor
 ———— tricolor
 ———— Hookèri
Borònia dentàta
Sprengèlia incarnàta
Pimèlia decussàta

HARDY.

Azàlea, many sorts
Kalmia ditto
Vaccínium ditto
Erica ditto
Phlox ditto

STOVE

Cymbídiùm sinénsis
 ———— dependens
Cypripèdium venústum
Pleurothállis sauronphila
Ruèllia Sabiniàna
Ardisia paniculàta
 ———— pyramidális
 ———— punctàta
Francíscea uniflòra
Gardènia Rándia
Barbacènia purpùrea

GREENHOUSE.

Elichr'ysum spectàbile
Hakea microcàrpa
Lachn'œa purpùrea
Patersònia glabràta
Petrophíla trifida
Erica, many species
Diósma, many species
Epácris ditto
Dillw'ynia ditto
Pol'ygala ditto
A'loe ditto
Sowerb'œa juncèa,
 &c. &c. &c.

HARDY.

Magnolia, many sorts
Iris ditto
Potentilla ditto
 &c. &c. &c.

LIST OF NEW AND BEAUTIFUL PLANTS FLOWERING THIS MONTH,

AT MESSRS. RONALDS AND SONS, BRENTFORD.

Salpiglóssis integrifolia	Pontica tricolor
Sedum azureum	Flamicolor
Azaleas	Splendida
Pontica álba	Speciosissima
—— globosa	Coccinata
—— odorata	Amænisima
—— nivalis	Glòria mundi
—— cærulea	Splendens
—— revoluta	Lépida
—— máxima	Pulehella
—— erecta	Exquisita
—— lutæa cærulea	Insignis
—— cruenta	Rùbra auræa
—— multiflora	Guillielmus primus
—— compæta	Formosa
—— aurantiaca	Maratima incarnata
—— pallida	Venustissima
—— calendulacea	Mixta triumphans
—— laxa	

TREATMENT OF THE VERB'ENA, &c.—As the plants of *Verbena Melindres* (Chamædryfolia, Sweet,) seldom survive our winters even if taken up from the borders and potted. We have found it the safest way to take off a number of young rooted plants from the old stools and plant them in small pots in a mixture of about equal parts of loam, peat, and sand; the pots are set in a cold frame placed in an airy situation facing the south, having a floor of sand about four inches thick for the pots to stand upon, and by allowing plenty of air, and keeping them moderately moist, they seldom appear sickly, and rarely die. We potted about one thousand last autumn, and scarcely a dozen have perished.

THE MAURA'NDIA *Barclayana* should be sheltered in a greenhouse or conservatory during winter, potted in light loam and peat, and kept regularly moist, if cut quite down, it seldom breaks strong again, and consequently rarely or ever looks healthy afterwards; the most approved method is to raise young ones from seed, which is ripened in abundance, as the old plants scarcely ever thrive well longer than two or three years.

THE COB'ÆA SCA'NDENS will do very well if placed in a pit or frame during winter, and kept moderately moist; it is better not to cut it down in winter, if it is even necessary to cut it in, let the operation be performed in the beginning of spring, let some young plants be raised annually from seed.—CONDUCTORS.

ON RAISING ANNUAL FLOWER SEEDS.—After sowing the patch of seeds and covering it with fine moist soil, place a garden-pot inversely over it: this remains till the seeds have struck root, when the pot must be raised two or three inches; keep it thus supported for a few days, and then remove it entirely. The pot not only tends to keep the soil moist, but the sun heating the pot, the seeds come up much more quickly than otherwise they would do, in consequence of which

the seeds need not be sown so early by a fortnight or upwards as is necessary in the usual way. The young plants are less exposed to injury from cold or late spring frost, and the soil is not washed off the seeds by heavy rains; also, where the garden is surrounded by trees, this practice prevents their being destroyed by birds. If pots are not convenient, hollow tiles will answer the same end.—*J. H. Hor. Trans.*

ON THE *HIBISCUS Fugæ*.—This is a herbaceous plant from Brazil. The stems die down during the winter, when the roots, being tuberous, must be kept rather dry. It grows well in leaf mould and sand, and is easily propagated by cuttings and layers of its angular stems.—*M. SEITZ.—Pruss. Gard. Soc.*

HINTS ON FLORICULTURE.—By the first of June, the night frosts of spring may be fairly considered as past, and consequently preparation may be made to fill up the different compartments of the flower garden, with such superfluous ornamental plants the greenhouse, &c. may contain: as eligible plants for out door summer decoration, large plants of the *Fuchsias* may be named, not forgetting the new species *F. bacillaris*, *Salvia splendens*, *fulgens*, *involucrata*, *Grahams*, and even *formosa*, are particularly splendid: and *S. fulgens*, planted in rich light soil, at the base of a warm aspected wall, and trained over the face of that wall, forms, in autumn, an especially splendid object. *Petunia nyctaginiflora*, whose large white flowers are very fragrant by night, treated in the same way, is surprisingly improved, and rendered a very ornamental object. *Pelargoniums* may be copiously planted out: and the trailing-stemmed ivy leaved kinds, trained over the surface of little beds set apart for them, and pegged into the soil at their joints, cover the earth with their glossy leaves charmingly, and flower beautifully and abundantly in the autumn. *Maurandia Barclayana* and *M. semperflorans* are well known summer climbers of great elegance and beauty; and although there is a coarseness of aspect in the *Lophospermum erubescens*, it is a climber whose copious wreaths of rosy blossoms excel, in beauty, many other plants of a more delicate habit. *Ficus elastica* is a beautiful object in its leaves during summer and autumn, when plunged over the rim of its pot in the soil of a sunny border; also the New Holland *Acacias* and numerous other plants.—*J. D. Gard. Mag.*

ARBORICULTURAL INTELLIGENCE.

ON SHORTENING THE TAP ROOTS OF TREES.—Dr. Schlechtendal lays down the following principles. 1. An injury to any one part of a plant occasions a change in the natural developement of the other parts. 2. Roots and stems are always in a certain degree reciprocally proportionate to each other. 3. The tap root does not form a part of every plant: but when it is so, it is an essential part of that plant. 4. By shortening the tap root, one or other of the following consequences will result:—tender plants will be more easily destroyed by severe weather; all sorts of plants by dry weather, from their roots not being so deep in the soil: the wood of the timber trees will be less durable, their trunks shorter, and their heads broader and less high: and fruit trees will blossom earlier and more abundantly, and their fruit will be larger and better flavoured. 5. To transplant trees, without injuring their roots, is difficult in proportion to the age of the tree, and the extent of the roots. 6. All transplanting ought to

be done when the trees are young, and then only can the roots be cut without injury. 7. When the tap root descends into a bad subsoil, it brings on diseases in the tree.

The general conclusion is, that when the largest and best timber trees are an object, the seeds should be sown where the plants are to remain, and, consequently, the tap root is never injured; but that in fruit trees, it should always be shortened, to cause them to spread out horizontal roots near the surface, among the nutritive soil.—*Prussian Gardening Society*.

NATURAL HISTORY.

THE *GALLINULA chloropus*, or COMMON WATER HEN, is a percher and excellent for food. One of these birds was kept in an aviary with some pheasants, and although the tip of the wing was clipt, at evening it scrambled up into some currant bushes to roost; and they have been shot on the top branch of a tall elder (*Alnus glutinosa*), as also on low shrubs by the water side; they have also been known to roost in Scotch pines, (*Pinus sylvestris*;) it has also been found that, when properly cooked, it is as fine eating as a woodcock (*Scólopax rusticola*;) water hens, in some places, are kept in a state of half domestication where they are quiet and undisturbed.—*Mag. Nat. Hist.*

POULTRY HATCHED BY THE COMMON BUZZARD IN CAPTIVITY.—At a farmer's house at Whittington, near Litchfield, a female common buzzard (*Fáleo Búteo*, L.) domesticated and kept in the garden, was every year set with some eggs of the common poultry, which she sat upon with great assiduity, and hatched at the usual time. When the chickens were hatched, the fury of this stepmother surpassed that of the common hen, but as the chickens grew up, it gradually abated.—There is also in the gardens of the Chequers Inn, at Uxbridge, another buzzard, which has reared a brood of chickens annually for the last eight years. The first showed her inclination to sit, by collecting and bending all the loose sticks she could obtain; her owner observing her actions, supplied her with materials; she completed her nest, and sat on two hen's eggs, which she hatched, and afterwards reared the young; since then she hatched and brought up a brood every year. In the last summer (1831) in order to save her the fatigue of sitting, some young chickens, just hatched, were put to her; but in this case she did not forget her natural appetite, but destroyed the whole. In the same summer, however, she proved a careful mother to nine others. When flesh was given her, she was very assiduous in tearing and offering her food to her nurslings; and appeared very uneasy if, after taking small portions from her, they turned away to pick up grain.—*Mag. Nat. Hist.*

ON THE EPIPHYTES OF THE ORCHIS TRIBE.—Orchideous Epiphytes grow naturally upon trees in the recesses of tropical forests: they establish themselves in the forks of branches, and vegetate amidst masses of decayed vegetable and animal matter; in consequence of their position, there cannot possibly be any accumulation of moisture about their roots. They also grow equally well on rocks and stones in similar situations. Shade seems essential to them, as does also high temperature and excessive humidity. The hottest countries, if dry,

and the dampest, if cold, are destitute of them, while there is no instance of a country both hot and damp, in which they do not swarm. No soil or temperature will nourish them in drought; but when the atmospheric humidity and temperature are carefully regulated any soil will do, as either garden mould, lime rubbish, gravel, decayed vegetable matter and moss, seems to suit them equally well, provided the drainage be effectual; but a deficiency in this renders every thing else useless. The mean temperature of the air in the day ought to be about 87 degrees Fahr. and its humidity at the point of saturation or nearly so. The most favourable situations for their growth are a well-drained soil, a shady situation, a saturated atmosphere, the mean temperature of which is never less than from 79 to 80 degrees Fahr. and a complete protection from dry parching winds.—J. LINDLEY, Esq. *Hort. Trans.*

THE SUGAR-CANE.—“Sugar-cane grows spontaneously in all the South-Sea Islands, and more than ten varieties are indigenous. It has been stated, that the best canes now cultivated in the West Indies are those taken there by Captain Bligh. In their native islands, they grow remarkably fine. I have frequently seen canes as thick as a man’s wrist, and ten or twelve feet between the roots and leaves. The *Iromotu*, a large yellow cane, and the *To-ura*, of a dark red colour, grow very large, and yield an abundance of juice; but the *Patu*, a small light red, long-jointed cane, with a thin husk or skin, contains the greatest quantity of saccharine matter. Some of the sugar manufactured by Mr. Gyles, was of a very superior quality; and if hired labour was less expensive, or the people more industrious, it might be raised with facility in considerable quantities.”

COFFEE.—“The *Haweis*, in returning to the Islands, in the spring of 1819, touched at Norfolk Island, formerly an appendage to the colony of New South Wales, and I believe re-occupied since that period. From this island the captain brought away a number of coffee plants, which, on his arrival in the islands, were distributed among the stations. The tender plants were once or twice removed, and all perished, excepting those in my garden at Huahine, which I was happy to succeed in preserving. The climate was favourable to their growth, and they appeared to thrive well. After four years, each tree bore about forty berries, which, when perfectly ripe, were gathered and sent to the several stations. They were planted, and have since flourished, so that in every island, the coffee plant is now growing, and may be cultivated to almost any extent.”

GARDENS.—“A garden is a valuable acquisition in this part of the world; and, next to our dwellings, we regard it as an important part of our domestic establishment. As soon as the sites of our houses were fixed, we employed natives to inclose a piece of ground adjoining them. I had received from Governor Macquarie, in New South Wales, a hundred ears of Egyptian wheat, which being a kind frequently grown in a warm climate, it was supposed might flourish in these islands. The grain was planted with care, and grew remarkably well; the leaves were green, and grew high and strong, and the ears large; but as they began to turn yellow, it appeared that scarcely one of them contained a single grain of corn, and the few that were found, were shrivelled and dry. Potatoes were also tried, and have been repeatedly planted since, in different situations and seasons; but although, after the first growth, they usually appear like young potatoes; if planted again, they are invariably soft and sweet, very small, and by no means so palatable as the indigenous sweet potatoe.

"At Asariaita, I had sown a number of seeds from England, Rio Janeiro, and New South Wales. Coffee and Cashew-nuts (*Anacardium occidentale*) I had before planted in boxes; they grew well, but the Coffee and Cashew-nuts were totally destroyed by the goats, which, reaping the fence one day, in a few minutes ate up the plants, on which I had bestowed much care. I succeeded, however, in preserving the Custard-apple (*Annona triloba*, or *squamosa*) that I had brought from Rio, and plants from it are now bearing fruit in several of the islands. In addition to these, I was enabled to cultivate Papaw-apple (*Carica papaya*,) French-beans, carrots, turnips, cabbage, and Indian-corn; while our little flower-garden in Huahine, was adorned with the *Convolvulus major* and minor, capsicum, helianthus, and amaranthus, with several brilliant native flowers, amongst which, the *Gardenia* and *Hibiscus rosa Sinensis*, were always conspicuous. The front of our house was shaded by orange trees, and our garden enclosed with a citron hedge."

"The natives display a taste for the beautiful, in their fondness of flowers. The *Gardenia*, *Hibiscus*, and *Amaranthus* were often wove in the most graceful wreaths and garlands, and worn on their brows. They were delighted when the *Helianthus* was added to their flowers. The king and queen passed by my garden, when the first ever grown in the islands was in flower, and came in to admire its size and brilliant colours. Soon after their return, I received a note from the king, asking a flower for the queen, and also one for her sister; I sent them each a small one; and the next time they appeared in public, the large sun-flowers were fixed as ornaments in their hair."

TOBACCO.—"The Tobacco plant is another exotic, common now in all the islands; it was introduced by Captain Cook, and has since been cultivated to a small extent by the natives, merely for their own use. Mr. Williams encouraged its culture to a considerable extent in the island of Raiatea, and the natives were taught to prepare it for the market of New South Wales in a manner that rendered the Raiatian tobacco equal to any brought into Sydney."

HABITS OF THE FEMALE BORNEO, AND THE MALE CHIMPANZEE ORANG UTANS.—As observed during their exhibition at the Egyptian Hall in 1831. The most striking points of distinction between the two were the length of the facial angle in the female or Borneo orang (*Simia Satyrus*.) The singular smallness of the ear, and its close resemblance to that of the human species; the pear shaped head, the nose but in a slight degree elevated, the nostrils narrow and oblique, the extreme length of the arms, the use made of them in walking, the animal resting the hands on the ground, and swinging as if on crutches, the hair of a reddish brown, very short, and but slightly scattered over the body, the abdomen exceedingly protruberant, the feet long, with the largest toe peculiarly short, but exhibiting a perfect nail. The Chimpanzee (*Simia Troglodytes*) exhibited a marked contrast, presenting a much nearer approach to that of the human race. The form of the head, the intellectual superiority that distinguishes the cast of the features; the proportionate length of the arms to that of the body, the larger and perfect thumb, the roundness of the thigh, the perfect feet, and the consequent upright mode of walking, the complete formation of the last joint of the great toe, and the quality of the sounds which it occasionally utters, denote the superiority of the Chimpanzee over the Borneo Orang Utan. On their first introduction they stood at some distance from each other, resting on their knuckles in evident contemplation of the new form they saw for the first time.

They then approached nearer, smelling each other, the female protruded her prominent lower lip, touching the lip of the male, but without any smack or noise. This was done apparently without any joy or mutual attachment, nor did they even show the least tenderness or attachment to each other, but always on the contrary, especially the female; on trying to make them sleep together in the same cage, a battle took place, of which it was thought advisable never to risk a repetition. The social habits of the Chimpanzee far exceeded those of the female. On first approaching in a morning, or after being absent from him a short time, he would utter a loud cry of recognition, and running towards you, would stand perfectly erect, spreading his arms to be taken up, when he would put them round your neck in the manner of the fondest embrace; nor was it an easy task for those to whom he was attached, to leave the room, except by stealth. Food was the only object that could cause any attachment, or even locomotion, in the female. In feeding, the greediness of the female was evinced by her body over the dish, securing the choicest morsels both with hands and feet, and then feeding with her mouth in the dish, using her lips after the manner of the horse, and evincing the greatest fear lest any portion should be taken from her. The Chimpanzee sat perfectly upright, taking small portions between his thumb and forefinger, in the most placid and gentle manner, nor was his rage even excited except by him refusing part of an orange, of which he might have caught a glimpse, or that he knew was contained in your pocket. Neither of the animals ever secured portions of food in the cheek or pouch, nor did they appear to smell their food before eating, as most of the monkeys do, except it was some uncommon substance which they had not been accustomed to eat. Both were in the habit of using a glass in drinking, but they were never known to throw it down; they invariably either gave it back, or set it down in the most careful manner. The Chimpanzee was particularly attracted by the brilliancy of colours, always getting up on the approach of any female whose dress was distinguished by the gaiety of its hues, he likewise evinced great joy in being placed at a window, and would scream with delight at the passing of horses and carriages, but nothing could exceed his rage when placed in a confined cage. Such was his love of the society of those he knew, that the temptation of the choicest fruits would not entice him to remain in the room alone; for if at liberty he would run towards the door, and try to get out first, or would embrace your knees, and cry in a most piteous manner to be taken by you. I never knew them attempt the least gambol or amusement of any kind, either together or individually; nor did they take any notice of other animals, as cats, monkeys, squirrels, &c. that were placed with them; but would sit for hours with the utmost gravity, as if absorbed in the most intense thought. The instinct of providing and placing warm materials for her bed was most marked in the female, who would be for two hours at a time dragging blankets from various parts of the room, smoothing and changing their position, and beating any raised part down with her knuckles, assuming, at the same time a look of gravity and an appearance of wisdom. The Chimpanzee took no care in this particular, but if no place was provided for him, and even when provided, if he did not like it he would climb into the bed of his keeper. The timidity of both was remarkable. A toy-dog, or a cast of one of their own species, if removed the least towards them was sufficient to drive them to the farthest extremity of the apartment, and the fear exhibited by the female at the sight of her deadly enemy, a boa constrictor was most acutely evinced. The

hearing of both animals was remarkably acute, and the knowledge of sounds was accurately shewn. They were in the daily habit of riding in a coach, and on being seated, before the vehicle moved, they would secure themselves by getting a firm grasp of the hold-straps attached to the side of the coach. They seemed to have a knowledge also of time, for as the hour approached at which they were removed to their nightly residence, they would of their own accord get the blankets, and enfold themselves in readiness to depart, and if their removal was protracted beyond the usual time, it required force to prevent them from going to the door. The Chimpanzee having caught a cold, which ultimately caused his death, he had a violent cough that in sound was remarkably human; and as when a fit of coughing came on, he was usually given some sweetmeat or cordial to stop it, he soon adopted the cough as a mode of obtaining those luxuries.—I. WARWICK.—*Mag. Nat. History.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

VARIETIES OF ELM.—Be pleased to inform me, through your useful Miscellany, the peculiar properties of the Elm. The Chichester, Worcester, and Wych. The first is very little known in this part. SALOPIENSIS.

MOVEABLE SAW MILL.—I wish your correspondent, Mr. Murphy, would send you a drawing and a detailed account of the machinery used in the Duke of Athol's woods, particularly the construction of the moveable Saw Mill. A. B.

FLOWERING THE BL'ETIA *Tankervilleæ*.—I shall feel extremely obliged by any of your correspondents giving me information respecting the culture and method pursued in flowering the Bl'etia *Tankervilleæ*. AN AMATEUR.

STRAWBERRIES FOR FORCING.—Would your esteemed correspondent, Mr. George Harrison inform your numerous readers, what sorts of *Fragaria* he cultivates for forcing, as he most likely unintentionally omitted it in his paper on the method of forcing that kind of fruit at Petworth, inserted p. 395. SAGE.

COMPOST FOR CAMELLIAS, &c.—In your compost for Camellias, No. 8, p. 362, is it to be as follows 12 barrowsful of loam; 4 ditto of sand; 2 ditto of peat earth; and 2 ditto of rotten dung? Or 12 of loam; 4 of sand, 6 of peat, and 6 of dung. I hope your correspondent G. A. L. will soon forward the list of Camellias, as he he says page 362. Perhaps you would mention your opinions on the subject of glazing, whether the old one inch lap is to be preferred to the one-eighth of an inch, and whether the last will admit the rain?

HAUTBOY STRAWBERRY.—Mr. Lindley states somewhat at large, in his "Guide to the Orchard and Kitchen Garden," that he has found, by his own experience, that the *Male* Plant of the Hautboy is worse than useless, as it occupies the ground and injures the growth of the other plants, and to which it does not contribute, as indeed it does not possess any fecundating principle. This statement is so much at variance with the experience of myself and some of my friends, that I can only suppose that Mr. Lindley's observations do not extend to the whole tribe of Hautboys, as by acting on his plan before I read his book, I was unable to obtain a single fruit, after the year when I destroyed the Male plants.

until I had planted others. I mention this that young amateur gardeners may not, like myself, be misled by the high authority of Mr. Lindley's name, so far as to suppose that his remarks extend to all hautboys: you perhaps, or some of your correspondents can inform your readers the kind to which Mr. L. refers. *I think mine are the Bath hautboy.*

I have a grapery in which I succeed pretty well generally; but my fruit which grows nearly to maturity without exhibiting any disease, is occasionally and partially affected when the bunches have nearly attained their last colouring, by many of the berries retaining their *red* colour; and upon examination, the foot stalk and the sprig appear incrustated with a brown rust which deprives them of the power of supporting the berries, and these consequently never ripen, or are in fact eatable. Can you give, or procure me the cause, preventive, and cure of this disease?

J. MILLS.

Jan. 28, 1832.

II.—COLLECTIONS AND RECOLLECTIONS.

In Berlin there are four large gardens, in which is kept up the appearance of perpetual summer. They are filled with orange trees, and exotics of different kinds, being covered over and having good stove fires, the temperature is always that of July and August. They contain Reading and Refreshment Rooms, &c. At night they are illuminated, and have a beautiful effect. Why should London have nothing of this kind? In Petersburg also they have their winter gardens; and surely we might have the same, where exercise, and conversation, and reading may most invitingly draw us from our fire-sides, when a ride in the Park or the streets could not tempt us to move in this dreary season of the year. In the zoological department we shall soon take the lead;—why do we not attempt this also? Try to give a taste for it—set it a-foot; and we shall soon leave Petersburg and Bérin far behind us.

R.

HAWTHORN TREE.—It is surprising the small progress in growth which trees will sometimes make when placed in situations where they can obtain but little nourishment, and yet how long they will live. I do not doubt but that many of your readers remember a small hawthorn-bush which used to grow between the stones on the top of the Conduit-house, in Hyde Park; it was cut down when some repairs were done to the stone roof ten or twelve years ago; I regretted it very much, for it accorded so well with the building. I had observed it from my youth, and in between thirty and forty years which I remembered it, its increase in size seemed to be but little: and I knew a gentleman who died more than ten years before it was cut down at the advanced age of 93, who told me he remembered it when he was a boy, and so gradual and slow had been its increase that, in his long life, he could hardly perceive the difference in its size. These circumstances make it impossible to fix the age of it at less than a 120 or 130 years. At the time it was rooted out it was not more than three feet high, no branch was from the stem more than two feet long, and the stem at the thickest part not more than an inch in diameter.

I. T.

ANTS.—To prevent the ravages of ants in places in which they sometimes abound and do mischief; it is only necessary to place tobacco leaves in their way, the smell is fatal to them, as is also that of the greater number of strong scented plants.—*Morning Herald.* I fear it is rather apocryphal.

G. A. L.

April 11, 1832.

III.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

The Anniversary Meeting of the Society took place as usual on the 1st of May, when the various officers were unanimously elected to fulfil their duties for another year; the report of the Auditors was read, and copies distributed to the Fellows of the Society.

The finances are now considered to be in a satisfactory state, and from the re-action which has evidently taken place in the affairs of the Society, and the interest which has been of late manifested in its welfare, we hope that ere long its difficulties will be entirely dispelled, and that it will exercise its beneficial influence with still greater vigour. Two papers were read on the heating of hotbeds through the agency of hotwater, thereby rendering their renovation unnecessary; the construction of the two were the principal points of difference. In the exhibitions during the past month we have noticed, as the most prominent plants, *Beaumontia grandiflora*, *Erica arborea*, and *E. mediterranea*, *Clivia nobilis*, *Hovea Celsii*, *Azalea sinensis*, *Templetonia retusa*, *Erythronium luteum*, *Gesnerias*, *Calceolarias*, Tulips from Mr. Groom's fine collection at Walworth; a plant of the *Erythrina Crista-Galli*, six feet high, profusely covered with blossoms; *Pæonia Moutan* and its varieties; a handsome Seedling *Camellia* raised by Mr. Wells of Redleaf, and a collection of Heartsease of the finest colours, from Mr. Young of Epsom. Very excellent specimens of cultivation have also appeared in the form of Cucumbers, Leeks, Flanders Spinach, Knight's protecting Brocoli, Lettuces, &c.

DEVON AND EXETER FLORIST'S SOCIETY.

The first Exhibition for this season took place at Congdon's Subscription Rooms in Exeter, on Wednesday, May 2nd, when the attendance of Gentry was such as must have been highly gratifying to its members; there was a good show of Auriculas, Polyanthuses, Greenhouse, Herbaceous, and other plants and flowers, which together made a very splendid appearance.

BROMLEY HOUSE SOCIETY, NOTTINGHAM.

The first Exhibition of this Society took place on Wednesday, April 25th; the display of Auriculas and Polyanthuses were very fine, there was a most beautiful and novel selection of flowers, from the greenhouse of Lord Raneliffe; also some very fine ones from Mr. Pearson, Mr. Spencer, and Mr. Gresham: the supply of fruits and vegetables were most excellent; the company were numerous and fashionable: we were glad to see the worthy Patron, Lord Middleton, and many of the Vice-Presidents, and Ladies and Gentlemen of the town and neighbourhood.

CHESTERFIELD FLORISTS' SOCIETY.

The Society of Florists held their Annual Exhibition of Tulips at Mr. Pinder's, the King and Milner, High-Street, Chesterfield, on Monday, May 28th, 1832, when a good supply of flowers were sent in for competition, and a number of prizes awarded.

BECCLES HORTICULTURAL SOCIETY.

This Society, under the presidency of the Earl of Stradbroke, held its first Meeting in the Assembly Room, on Wednesday, the 9th of May. The attendance of ladies and gentlemen was very great; amongst whom were Sir Edmund Bacon, Bart. and the Miss Bacons, with a party of their friends; Sir Thomas Gooch, &c. &c. The day proved fine, and the specimens exhibited were very superior to what could have been expected from a newly established Society at this time of the year. Mr. G. Thurtell, notwithstanding the lateness of the season, produced nineteen superb hyacinths, several choice varieties of the heartseases, a brace of magnificent cucumbers, a bunch of asparagus, of fifty-one heads, weighing four pounds ten ounces, and a double polyanthus, unique and of great beauty, and consequently justly carried the prizes for all that were offered; Mr. J. Toll, of Keswick, produced eighteen pots of very fine auriculas, gaining the first and second prizes; a dish of Keene's seedling strawberries from Sir T. Gooch's gardens were much admired; a dish of apples from E. C. Sharpin, Esq. and also the cardilac pears from Mr. R. Baas, of Chedlestone, were in a fine state of preservation; the fruits and vegetables in general did great credit to their growers; there were also some beautiful flowers. Mr. Francis, of Beccles, exhibited nine pots of auriculas, and gained with well-earned merit, the thrice offered prizes.

SHEFFIELD HORTICULTURAL SOCIETY.

On Wednesday, May 30th, the second Exhibition for the present year, of this Society was held at the Music-Hall. Tulips formed the prominent feature of the Show, and there was certainly one of the best selections ever witnessed in this town. Of Fruits and Vegetables the specimens exhibited were truly excellent; and many greenhouse and stove plants, from the conservatories of the neighbouring nobility and gentry, attracted marked attention. The visitors on the occasion were numerous, including nearly all the first families in the town and its vicinity.

HORTICULTURAL SOCIETY OF IRELAND.

The spring Exhibition was held in the Rotunda on Tuesday, April 24th, when the specimens were generally well grown, rare and beautiful—the Auriculas and Hyacinths were remarkably fine; and the whole seemed to indicate a rapid improvement in the horticulture of the neighbourhood of Dublin.

IV.—NATURALIST'S CALENDAR FOR JULY.

BOTANY.

IN general this is the hottest month in the year, it was called by the Saxons *hay month*; within the last fourteen years the thermometer, in three or four instances, has ranged as high as 85 and 87 degrees, and once even to 89 degrees; it is often, however, very showery, and the rains towards the middle of the month, sometimes become of a periodical character; the vegetable kingdom is now in its full glory, more plants are now in flower than in any other month, the Enchanter's Nightshade (*Circæa lutetiana*) may be found in damp shady situations; in marshes, rivulets, and stagnant pools, several species of Duck-weed, (*Lémna*;) Club-rush, (*Scirpus*;) Pond-weed, (*Potamogeton*;) Water Parsnep, (*Siúm*;) Rush, (*Juncus*;) Water dropwort, (*Ænánthe*;) Water Plantain, (*Alisma*;) Hooded Milfoil, or Bladder-wort, (*Utriculària*;) Common Reed, (*Phragmites*, *communis*;) Brook-weed, (*Samolus valerandi*;) Water Star-wort, (*Callitriche autumnalis*;) Chara, (*Chára vulgàris*;) this too is an important month for collecting the different grasses in flower, as the Canary Grass, (*Phalaris canariensis*;) which with many other sorts may be found in uncultivated places—in meadows or pasture fields; the Cats-tail grass, (*Phleùm pratensis*;) Fox-tail grass, (*Alopecùrus*;) Bent-grass, (*Agróstitis*;) Meadow-grass, (*Pòa*;) Quaking-grass, (*Briza*;) Fescue-grass, (*Festùca*;) Clove-pink-leaved Hair-grass, (*Aira carryophyllea*;) Cocks-foot Prickling-grass, (*Echinòchloa crus-galli*;) &c. On sandy banks, several species of Speedwell, (*Veronica*;) and Bell-flowers, (*Campánula*;) &c. And on road-sides, Yarrow, (*Achillea*;) &c. &c. the hedges abound with Goose-grass or Cleavers, (*Gálum Aparine*;) and in the Corn-fields, Blue-bottle, (*Centàurea*;) Camomile, (*Anthemis*;) Bind-weed, (*Convolvulus*;) &c. the Puff-ball, (*Lycopèdon bovista*;) and common Mushroom, (*Agaricus campestris*;) now appear, and towards the end, Truffles, (*Tùber cibàrium*;) are hunted and dug up in commons and forests.

ZOOLOGY.

BIRDS.—The Cuckoo, (*Cùculus canòrus*;) is seldom heard later than the first week; the Nightingale, (*Sy'lvia Luscínia*, Lathan; *Philomèlla Luscínia*, Rennie,) now seldom utters any other noise than croacking; the Skylark, (*Alànda arvensis*;) the Woodlark, (*A. arborea*;) and the Thrush, (*Túrdus mùsicus*, Lin.) still continue their song; as does also the Black-cap, (*Sy'lvia atracapilla*;) and the Reed, and Sedge Warblers, (*Currùca arundinàcea*, and *Salicària*;) the Stone Curlew, (*Charadrius ædicnèmus*;) whistles occasionally very late at night; the Quail, (*Cotúrnix major*, *Brisson*;) utters its two or three singular notes during the day, and through a greater part of the night; young Bulfinches, (*Pyrrhùla vulgàris*;) fly; the Gold-crested Wren, (*Régulus cristàtus*;) may occasionally be heard chirping; and young Partridges, (*Pèrdix cinèrea*;) run.

INSECTS are seen sporting on every hand in myriads, the Lepidopterous families are now peculiarly interesting, the gardens and fields swarm with butterflies during the day, and in the evenings numbers of moths may be found in every direction; the beautiful Tiger Moth, (*Arctia Càga*;) now makes its appearance, the larvæ of which feed on the strawberry and lettuce; the Humming-bird Hawk-moth, (*Macroglossa Stellarum*;) may be seen, mornings and evenings, darting from flower to flower, with something of the swiftness of its feathered

namesake of the tropics; also the Gammon Moth, (*Plüsia Gámma*) which nearly resembles the preceding in habits, may be found both in gardens and fields; in the long grass abounds the large yellow Underwing Moth, (*Tripl'hæna Pronùba*;) the larvæ too of the Goat Moth, (*Cóssus lignipérda*;) may be found occasionally buried in the earth. Numbers of the *Ichneumoníðæ*, as *Cry'ptus peregrinator*, &c. now fly about in search of larvæ on which to lay their eggs; the hoary beetle, (*Zantheùmia solstitiális*;) is to be seen, and towards the end of the month the four spotted Carrion Beetle, (*Sílpha four punctàta*) may be observed in the evenings, hovering under hedges, or in thick woods in search of dead animals, &c. the *Stomóxys calcitrans* and *irritans*, both of which have a great resemblance to the house fly, (*Músca doméstica*;) begin now to torment cattle; the invisible Harvest Bug, (*Acàrus Ricinus*;) and the common Gnat (*Cùlex pípiens*;) are now very troublesome; the great Horse Fly (*Tabànus hovinus*;) appears; Glow-worms, (*Lámpyris noctilùceæ*;) almost cease to emit their light after the middle of the month, although they are observed more or less throughout the whole summer, but retiring for the winter into the crevices of a stony or earthy soil. And the Cockchaffers, (*Melontha vulgàris*;) now become numerous, and are fed upon by the rooks.

METEOROLOGY.

BAROMETER.—Mean Height, 30. THERMOMETER.—Mean Temperature, 61. RAIN—Mean Quantity, 2,448 Inches. EVAPORATION.—Mean Quantity, 3,293 Inches.

V.—MONTHLY HORTICULTURAL CALENDAR,

FOR JULY.

Although the Crops of fruit, &c. were generally backward this spring, the late rains have been the means of bringing them forward with amazing rapidity. The warmth of this month will preclude the necessity of much fire heat in the stoves: if the weather should prove very wet, however, it will be necessary to make sufficient fire to dry up the damp, and ripen the fruit kindly; all the crops in the early forcing houses will be ripening, and perhaps many of them be gathered, in which case the trees will require exposing to the weather. The summer dressing of the wall-trees should be proceeded with, and a few successional crops sown in the Kitchen Garden.

FLOWER DEPARTMENT.

Greenhouse Plants out of doors, particularly if the pots stand in an exposed situation, will require a good supply of water every day, and occasionally in the afternoon well syringing over the head, with clear water.

Carnations now require attention, p. 47, and 199.

Azaleas may now be propagated by cuttings of the young wood.

Bud Roses, p. 245, and 249.

Ranunculuses out of flower should be taken up, p. 196.

Tigrí'dia pavonia, for the treatment of Seedlings, see p. 401.

Erythrina Cri'sta Ga'lli may now be propagated by cuttings, p. 114.

Bud Lemon and Orange Stocks, if the bark will rise freely.

Erica Cuttings may now be put in, p. 455.

Propagate Pelargoniums by cuttings, p. 517.

FRUIT DEPARTMENT.

Melon Plants in the pits or frames, will be in full bearing; let them be stopped and otherwise regularly attended to.

Thinning Wall-Fruit, let prompt attention be paid to this, as early in the month as possible, not stripping off too many however, till the stoning season is over, p. 47.

Cherry Trees in the houses forced this season, as well as *Peaches and Nectarines*, when all the fruit is gathered, should be fully exposed to the weather by the lights being removed from the houses.

Mildew.—If this disease should make its appearance, wash the trees with sulphur and water. For the vegetable cropping, or any other information required, see Calendar for July, p. 47.

THE HORTICULTURAL REGISTER.

AUGUST 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—SOME PARTICULARS RESPECTING THE CULTIVATION OF THE VINE IN NEW SOUTH WALES.—By J. T.

THOUGH the climate and soil of New South Wales appears so well suited to the grape, the progress that might have been expected, has by no means been made in the culture of the Vine in that country. Some grapes are raised however of a good quality for the table, and in a few instances, wine has been made, but to a very limited extent; and, as far as I have heard, of rather an inferior quality. One of the principal difficulties the cultivator has to contend with is the cold south-westerly winds, which often prevail in the spring after the vine has begun to shoot; and which are of the nature of our north-easterly winds; blowing over the ice of the south pole, as ours do over the north. These winds, therefore, greatly injure the young shoots of the vines. A. Mc'Leay, Esq. the colonial secretary, has instituted a set of experiments, which, it is hoped, will lead to the overcoming this evil. He has planted all the varieties of the vine, which he could obtain, in the same exposure, and in every respect under the same circumstances, the result has been that about ten varieties have been found much hardier than the other sorts; and which have suffered very little from the cold winds of their last spring. A writer in the *Sydney Gazette* is so sanguine as to think that, from these hardy

sorts, they shall be able to make wine to a very considerable extent. There are, however, still other difficulties to overcome before this desirable object is attained; at a later period in the summer they are often subject, near Sydney, to a dry, hot wind, which injures the vines much; and it would appear from last year's observations that those sorts which stood the cold winds of the spring best, did not bear the hot dry winds, so well as some of the tender kinds: it is to be hoped, however, that the perseverance which seems already to have overcome the greatest impediment, will be able to find varieties which will endure both kinds of wine.

J. T.

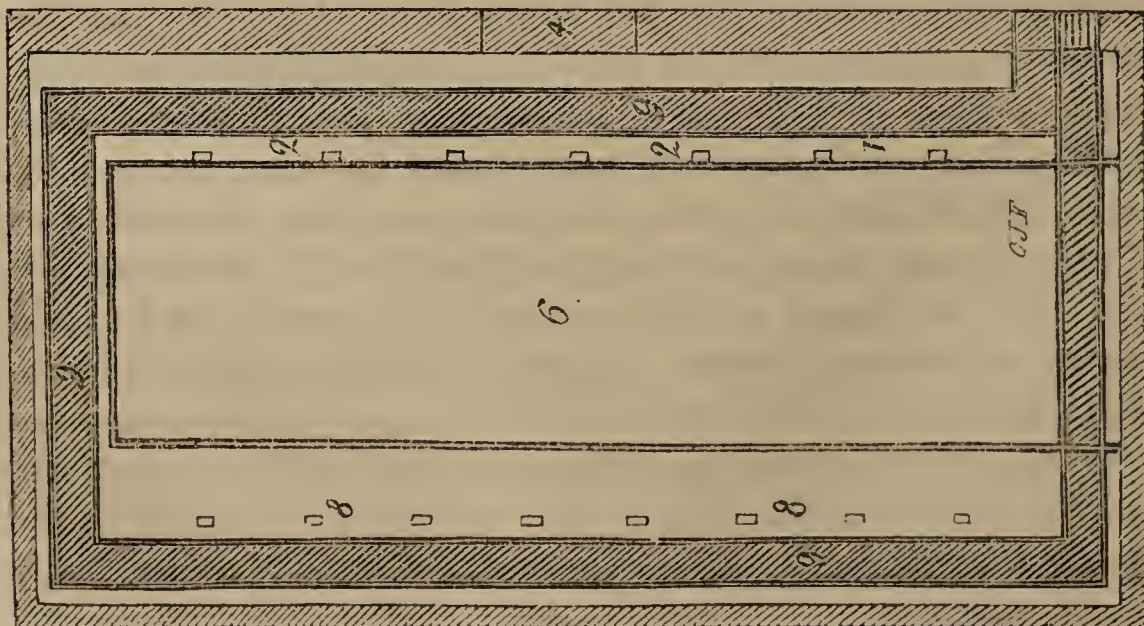
ARTICLE II.

PLAN AND DESCRIPTION OF A PROPAGATING-HOUSE.

BY MR. RONALDS, NURSERYMAN, BRENTFORD.

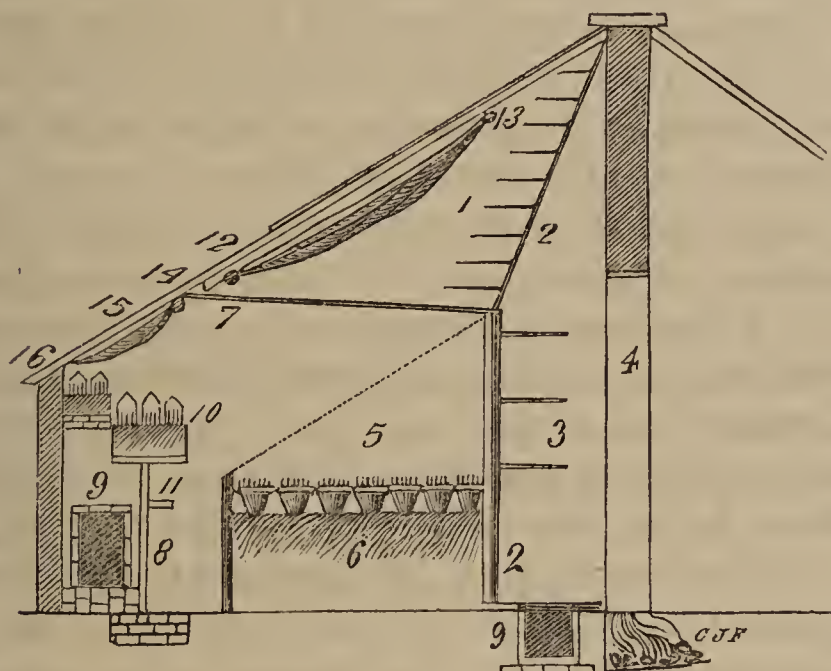
I AM persuaded almost all the plants with which we are acquainted may be increased by cuttings; and in order to perform this successfully two things are requisite to be known: the best time to take the cuttings from the plants, and the best manner of keeping them alive until nature has formed roots to support them. It would be impossible to lay down any rule for the first, without making an entire list of all the plants known, as every genus, and even species, differs more or less from another; for instance, the common tree Pæony (*Pæonia Moután*) will root in six weeks, if the cuttings are put in soon after the plants are out of blow; whilst the sweet scented variety will only strike when planted previous to the flower expanding.

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To assist in keeping them alive, I have sent you the plans of a house, that I have found to answer the purpose very well, (fig. 108.) The front stage is used for plants which will not bear the damp atmosphere of the pit, as *Epacris*, *Ericas*, &c. &c.; the pit is for the cuttings of such plants as require a damp atmosphere, as *Camelias*, *Phillyreas*, and many other evergreens, which require a little heat to make them root freely. When well rooted, I remove them to another house, and make room for more on the shelves. I would here just observe, that the pots for cuttings cannot be too well drained, they should be half filled with broken potsherd, covered over with a little peat or moss, which will keep the sand from sinking through.

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At the back of the pit there are iron supports, one inch square, each one solid bar and bent as (2 2) into which brackets are rivetted for the shelves to rest upon; (3) shelves used for bulbous or tuberous rooted plants in winter, as *Ferrarias Dahlias*, *Gladioluses*, &c. these extend the whole length of the house, there is a door through the back wall (4) to take any plants in the potting shed, without exposing them to the open air: the two bottom shelves are divided, and take out easily when the pots of cuttings in the pit may require moving, to introduce new tan into the pit, or for other purposes. The pots of cuttings (5) are placed on the tan (6,) and not plunged, as by constant sprinkling they are liable to become too wet; eighteen inches thick of new tan is put on the bed, about every two months; this keeps up a regular warmth, the new tan is suffered to lay on the old for the two months without mixing, then some of the old tan is

taken away and the whole mixed well together, at the same time spreading over the top eighteen inches more new bark. The lights which cover the pit are attached by a loop, or string and nail to the rafters of the house (7) at the time of sprinkling the cuttings with water. The front stage is supported by frames of one inch square iron (8) set firm in three or four covers of brick work, and also driven into the wall of the house. One of these frames is placed at about every three feet. (9) flue; (10) beds of sand, with pots and glasses fitted in them; there are three pieces of wood one and a half inch square, laid at the bottom of each bed to support two flat tiles on which the sand is laid; a board is also screwed to the turn-up iron to keep the sand up in the front, the pots of cuttings are then plunged, by which means they are not so liable to suffer from either drought or constant watering, and the flue being underneath gives a moderate warmth, and keeps the cuttings in a growing state through most part of the winter; a bracket is rivetted into each iron support (11) to bear a shelf, for the purpose of setting on the cutting glasses when not wanted, or at the time of sprinkling the cuttings. The pit is shaded by a covering of very thin canvas, three feet wide, which can be rolled up or spread out at pleasure by means of a wooden roller (12.) The canvass is attached to a lath, and by means of pulling a string tied to the lath, and passed through a ring (13) the canvass is stretched out as wide as the ring; the string is then fastened to a nail (14) to keep the canvas in its place. When the string is loosed from the nail, the canvas may be rolled upon the roller by the hand: (15) roller for shading the front pots in a similar manner, the lath is placed on a hook at (16) which keeps the blind extended, and is rolled up or spread out by the hand.

J. RONALDS.

ARTICLE III.

ON THE CULTURE OF THE HORSE RADISH.

BY RUSTICOLA.

THE horse-radish (*Cochleària Armoràcia* of Linnæus) and *Armoràcia rusticàna*, of modern botanists, belongs to the natural order *Cruciferæ* is indigenous to many parts of England, being found in marshy grounds, and by road sides in Devonshire, Dorsetshire, and other places in the north of England. My manner of cultivating it is this: I first fix on a quarter composed of yellow loam, and in an exposed situation; this I have trenched $2\frac{1}{2}$ feet deep, taking care to

break the soil well, particularly that part intended to be first planted; I then divide the ground into three parts. The first division is bored with holes eighteen inches apart every way, and from eighteen to twenty inches deep. I then take some crowns cut into single buds, and drop them into the bottom of the holes, filling them up with rotten tan, cinder dust, or any light soil; a light dwarf crop may then be sown on the ground as well as on the two pieces kept in reserve. The year following I plant another division the same way, and the year afterwards the last division is planted, by which time that which was first planted is ready to take up, this is done in the manner following: a trench is opened at one end of the piece to the depth of the roots, which are each cut horizontally with the spade, leaving the bottom of the root in the ground, until the piece, or as much as will serve for a year be taken up. The trench is then levelled back, picking out all the little fibrous roots, and adding a little rotten dung as occasion requires. When it pushes up again in the summer I take advantage of rain to thin it out to regular distances, and by the time the last planted piece has been taken up, it will be grown to a fine size. The roots, when taken up, are laid in with their fibres entire, in a cool, moist situation, where they will keep good twelve months or more if required. By these means I have always a regular succession of well grown roots every year, and by keeping it on one quarter I prevent the nuisance of it coming up, wherever it may have been planted. When once a plantation is made it will keep producing fine roots a great number of years, giving the ground, every time you take up a quantity of roots, a good dressing of dung.

RUSTICOLA.

Wandsworth, May 22, 1832.

ARTICLE IV.

ON THE CULTURE AND PREPARATION OF VIRGINIA AND ORONOOKA TOBACCO.

BY MR. MEARNS.

AFTER the leaves are gathered, and laid across poles or lines in an airy, open shade, till a large portion of the watery juices are evaporated, they are laid in large boxes filled up to the top, a lid fitted to the inside of the box is laid upon them, and weights upon it to press them down; fermentation soon takes place, and as is seen by dung

in a stable yard. The mass of leaves soon heat themselves sufficiently dry, to be in a fit state to pack up for use, either for fumigating or other purposes. It ought to be known, and it is not the least important part of the art, that the land should be rich, prepared as if for cucumbers, and the plants previously (in this country) raised early, on a hot bed, are potted off, shifted, and hardened by degrees like the tomatoes, then turned out of the pots, and planted in rows, four to six feet apart from plant to plant each way, for if it be a fine season, and they be judiciously managed, each leaf will measure from two to three feet long, and be very broad and fleshy. When the plants have got from six to eight leaves each, according to their vigour, take off the top of each, and as the buds at the base of the leaves break pick them out, so as to blind every eye upon the plant; some planters retain a bud at top, to carry up the sap more readily, and like the spurring of vines, pinch it back occasionally, but that is said to be unnecessary. By such process all the sap is thrown into the leaves, so that by the commencement of the season for collecting, they will be very fine. To prepare tobacco properly it must undergo a considerable degree of fermentation, and there must be boxes of sufficient capacity to contain a body of sufficient bulk, to create the required degree of heat, or it is not tobacco. To manage it properly you must at least have as many boxes as there are leaves on one plant, and as many plants that a leaf taken from each will fill one box, say 200 plants, which I think would be leaves enough to produce the required fermentation. As soon as the bottom leaves have done growing, and begin to change of a yellow hue they are fit to gather, and not till then, so that only one can be in a proper state to detach from the plant at one time; they are hung in the shade as before mentioned, and, when in a fit state, laid in the first box for the process of fermentation. When the next leaves are fit to detach, they are treated in the same manner, and so on until the six or eight leaves are gathered from each plant, consequently, all the boxes filled. For further details on this subject, I leave the affair to those who have had far better opportunities of becoming acquainted with the process of culture, and method of first manufacture than myself.

J. MEARNS.

ARTICLE V.

ON THE TREATMENT OF THE LOVE-APPLE, OR TOMATOES,
CAPSICUMS, AND NASTURTIIUMS.

BY SAGE.

IN the beginning of March, the seeds of the Tomatoes, (*Lycopersicum esculentum* of Dunal; *Solanum lycopersicum* of Lin,) should be sown in pots of rich mould, and covered about half an inch deep with the same, well sifted; these pots should be placed in a melon or cucumber frame, and duly watered, until the seeds begin to vegetate, when they should be removed into the pinery or stove, and as soon as the plants appear in second leaf pot them off in rich mould, either a single plant in each small pot to be repotted again in a short time, or three planted in a pot about six inches diameter, and five inches deep. When potted give them a gentle watering, and place them in a shady part of the house, for a few days. When they have begun to grow, remove them to a more exposed situation, or they will be liable to draw; care must be taken not to allow that destructive insect, the red spider (*Acarus*) to retard the growth of the plants, but as soon as any are observed, syringe the plants occasionally with a weak solution of sulphur and tobacco water; also sprinkle them over head every morning and night with clear water. They should remain in the hot-house until the beginning of May, and then be removed to an airy part of the greenhouse, allowing them a regular supply of water as well as air. When the weather becomes settled, perhaps about the last week in May, prepare the interstices between the wall trees on either a south or east aspect, by removing the subsoil to the depth of eighteen inches, and filling the holes up with good melon earth, then turn the plants out of the pots, press the soil of the border finally about their roots, and give them a good watering. No further attention is requisite except sheltering them with mats if the nights prove very cold, both now and in the autumn displacing all foreright and other superfluous shoots, and regularly nailing them to the wall as they advance in growth. When the frosts of autumn begin to appear, gather the fruit in bunches, with part of the stem adhering to them, and hang them up in the stove to ripen. There are three varieties of this *Lycopersicum* grown, the red, yellow, and white fruited, but the former is in the greatest estimation for all culinary purposes. Nasturtium or Indian Cress (*Tropæolum*

mâjus) may be sown on a south border, the end of March, or beginning of April, in drills nine inches apart, and one and a half inch deep, and covered with light rich mould. This plant is cultivated for its flower, as well as fruit; the flower being used for garnishing salads &c. and the fruit for pickling. The *Tropæolum* makes a very agreeable variety as well as pleasing appearance trained amongst other climbing plants against summer-houses, harbours, alcoves, or basket handles. Perhaps it may not be known generally, that the flowers of this plant on moonlight nights emit sparks of fire, resembling those struck by a steel and flint. Can the professor of natural history, J. Rennie, Esq. or any other of your excellent scientific correspondents or readers, account for the cause?

Capsicum.—The different species and varieties of this genus, are raised from seed sown in the beginning of March in pots of rich mould placed upon a strong hot-bed; when come into second leaf, they are potted off singly into small pots filled with light rich soil, and decayed wood or leaf mould, well ameliorated by the frost of the preceeding winter, they should be kept in the stove, and repotted as often as they require it. If the red spider (*Acarus*) and green fly (*Aphis*) make their appearance, treat them as recommended for Tomatoes, water them occasionally with drainings of dung-hills, which will greatly assist them in bringing their fruit to perfection. The *C. frutescens* may be propagated by cuttings as well as by seeds, and is considered superior to all other sorts for culinary purposes. This species is grown to great perfection at the Marquiss of Stafford's, Mr. Wooley, the intelligent gardener there would confer a lasting favour on many of your readers by inserting a paper in the *Register* on his method of growing them. All the perennial species may be taken out of their pots in spring, the soil shaken from them, all their superfluous roots be cut off; the shoots cut down to two or three eyes, and then repotted again in the compost mentioned before, and placed in a hot-bed to start them. SAGE.

FLORICULTURE.

ARTICLE VI.—THE VARIETIES OF THE CAMELLIA.—By G. A. L.

PURSUANT to my promise made some months since, I shall proceed to lay before your readers, a list of the varieties of the *Camellia Japonica*, I deem most worthy of their attention, and deserving of cultivation. I shall add a few cursory observations to the name of each variety, which I flatter myself will be serviceable and useful, by guiding the choice in forming a collection of this noble tribe of plants

To many, I know they will be useless, to these persons I must apologize, not for wasting their time, for they must skip and turn to something more useful; but for occupying so many pages of the Register, which I confess might be so much better filled up by abler and wiser heads. I must not forget to express my obligations to Messrs. Chandler and Booth, to whose valuable work on the Camellia, I am indebted for much of what follows.

G. A. L.

May 26th, 1832.

1. CAME'LLIA JAPO'NICA, the old single red Camellia, introduced in 1739; chiefly cultivated for the sake of cuttings, to raise stocks, upon which to inarch and graft the finer varieties.

2. C. JAP. FLOR'A PLE'NA A'LBA, the old double white C. introduced 1792. This variety is too well known, and too beautiful to require any recommendation, or comment.—Indeed, I think it is the finest in cultivation.

3. C. JAP. RU'BRA PLE'NA, the old double red, or Greville's red C. Introduced in 1794, by Sir Robert Preston, of Valley-Fields. Although not so much cultivated as some of the other varieties, yet no collection should be without it. Messrs. Chandler and Booth observe, that it does not flower well before it attains a considerable age. The flowers from three inches to three and a half in diameter.

4. C. JAP. INCARNA'TA, VEL FLAVE'SCENS, Lady Hume's Blush or Buff C. Introduced in 1806, for the late Lady Hume, of Wormlebury, Hertfordshire. A fine and beautiful flowering variety, and well deserving of cultivation; but requires often to be pruned, or it becomes straggling in its growth.

5. C. JAP. ANEMONE FLOR'A. Anemone flowered, or red Waratah C. introduced in 1806. A very fine and distinct variety, but its flowers drop much sooner than those of the other kinds. Many fine seedlings have been raised by impregnation from this variety.

6. C. JAP. VARIEGA'TA, the double-striped C. introduced in 1792, by Capt. Conner, for the late John Slater, of the India House. A fine variety, but like most of the variegated Camellias, no dependance can be placed upon the flower coming striped with white.—Indeed, during the last few years, this variety appears to have degenerated. Mr. Chandler recommends, that it should be forwarded in the stove, in a warm part of the green house, so that the plant may flower late in the autumn, or early in spring,—because, when thus heated, it is generally more variegated, than when flowered later in the season.

7. *C. JAP CARNEA*. Middlemists' C. not very worthy of attention, except for cuttings, which make excellent stocks. It will sometimes open a fine flower.

8. *C. JAP MYRTIFOLIA*. Myrtle-leaved C. Supposed to have been introduced about 1808. A beautiful variety, neat and compact in its growth; the flowers are of a deep rose colour at first, becomes of a fainter tinge after their expansion. This variety, and those called *C. Jap. involuta* or Lady Longs, and *C. Jap. hexangularis*, appear to be one and the same plant, only there is sometimes a slight difference in the foliage, or flower, arising from accidental variations of soil and culture. They are sometimes called the large flowering myrtle-leaved, the large myrtle-leaved, and the small myrtle-leaved. Although, I think they are but one variety, and in this opinion I am supported by Mr. Chandler, yet there are many persons who maintain that they are three distinct varieties.

9. *C. JAP. FIMBRIATA*, fringed white C. Introduced about 1816. A very beautiful plant, resembling the old white, but the edges of the petals being fringed, gives the flower a very pretty effect. It *must* be cultivated by every lover of the Camella.

10. *C. JAP. POMPONIA*, Pompone or Kew Blush C. Introduced to the Kew Gardens, about 1810. This plant, I take to be the same as the one called *C. jap. variabilis*, (but see *C. jap. pœoniflora*, below.) It bears a pretty flower, but the plant is loose and rambling in its habit.

11. *C. JAP PŒNIFLORA*, Rosy Pœony flowered C. Introduced about 1810, for Charles Hampden Turner, Esq., of Surry. A very beautiful plant, of which there are said to be three varieties, viz. the rosy or red, the blush, and the pompone or white; but in this nomenclature, there appears to be great and almost inextricable confusion. For my own part, I think there is but one pœony flowered,—the red or rosy, which I believe never varies in the colour of its flowers, and therefore is distinct from the pompone or *variabilis*, the flowers of which vary in their colour, being sometimes red, sometimes white, and sometimes blush; or again, flowers of two, or even of the three different colours, will often be seen on the same plant. So that in my opinion, the blush pœony flowered, and the pompone, or *variabilis*, or white pœony flowered, is one plant, distinct from the red pœony flowered, the latter not changing the colour of its flower, although it resembles the pompone in the shape of the flower, and the habit of the plant, in which latter respect, they so much resemble each other, that it is difficult to distinguish them when not in bloom. I will not vouch for the accuracy of my opinion, but I never yet could meet

with white and the blush pœony flowered; however, I have been shown the pompone, when it happened only to have a white flower upon it, by the name of the white pœony flowered, or when, only a blush coloured flower, by that of the blush pœony; but when there has been two or more flowers of different colours on a plant at the same time, then it was called the pompone or Kew blush, sometimes the *variabilis*; but the true pœony flowered far surpasses the pompone, *variabilis*, or whatever other name it may possess.

12. C. JAP. DRANTHIFL'ORA, VEL KN'IGHTI, Knights' carnation waratah C. A very pretty seedling, raised by Mr. Knight, of the Exotic Nursery, Chelsea.

13. C. JAP. ANEMONE FLORA ALBA, White anemone flowered C. A fine seedling variety, raised by Mr. Chandler, of the Vauxhall Nursery. Flowers, three to four inches in diameter, white, and sometimes dotted and striped with pale red.

14. C. JAP. WILTONI, Lady Wilton's C. A pretty seedling, raised by Mr. Knight some years since. The flower is very pretty when it is striped, but in this respect no dependance can be placed upon it. The plant is but little known.

15. C. JAP. CORALLINA, coral flowered C. So called, from the colour of the flower, which resembles that of coral. A fine and splendid seedling, raised in 1819, by the Messrs. Chandler. It will sometimes have the flowers striped with white.

16. C. JAP. EXIMIA, Chandler's choice C. Perhaps this is the finest variety raised by the Messrs. Chandler, the only one that can compare with it, is *corallina*, and that is certainly nearly its equal in beauty, but its beauty is of a different and distinct kind to that of *eximia*, the flowers of which are of a rose colour, very double, and about four inches in diameter. No collection *must* be without either of them, although both are still very expensive, particularly *eximia*.

17. C. JAP. IMBUCATA, Imbucated C. Next to the old white, this is certainly the finest variety imported from China. It much resembles the C. jap. *eximina*, I scarcely know which I prefer of the two.

18. C. JAP. CHANDL'ERI; Chandler's striped waratah C. Another very fine seedling, raised by the Messrs. Chandler in 1819. It is often variegated, but is very uncertain in this respect.

19. C. JAP. ROSA SINENSIS, Rose of China C. A very fine seedling, from the Vauxhall Nursery. Colour pale red.

20. C. JAP. WELLB'ANKII, Wellbanks C. A handsome white variety, from China, well deserving of cultivation.

21. C. JAP. SPECIOSA, beautiful or Capt. Rawes' striped waratah C.

A beautiful and elegant variety, imported within a few years from China. It is held in high estimation by every admirer of the Camellia.

22. *C. RETICULATA*, Reticulated C. A distinct species from the *C. japonica*. Introduced by Capt. Rawes in 1820. It produces flowers resembling the *Pœonia Moutàn*, both in form and colour. It is difficult to propagate, in-arching is the only sure plan, and the stocks must be very strong. This species will not bear the knife like the *C. japonica*, consequently, care must be taken to leave a good strong bud, at the next joint to that from which you take the scion, and that bud must be strong and well formed, before laying on the shoot immediately above it, otherwise the whole branch will die; and if it be a small plant with only one shoot, the whole plant will most probably go off. It is still very scarce and expensive.

23. *C. SASANQUA*, *ROSEA*, *VEL MALIFLORA*, Lady Banks rosy Sasanqua, or the apple-blossomed C. A distinct species, and universal favorite. Introduced in 1816, by Capt. Rawes, for J. C. Palmer, of Bromley, Kent. Mr. Chandler recommends, that it should have more heat in its culture, than the varieties of *C. japonica*.

G. A. L.

May 26th, 1832.

(To be continued.)

ARTICLE VII.

ON THE CULTURE OF THE MESPIUS,

(*ERIOBOTYRA*, LINDL.) *JAPONICA*.—BY Q.

THE Japan Loquat is generally considered a greenhouse plant, and is grafted on white thorn, medlar, service, or quince stocks, but it is found to thrive best on the white thorn (*Cratægus Oxyacantha*) and when the stock is of a good shape it forms a very handsome tree. The fruit ripens pretty well in the greenhouse, although the flower is much improved by the temperature of the stove; the fruit is of a rich yellow colour, grows to the size of a gooseberry, and is nearly as good as the manga; the variety commonly cultivated, however, is very inferior to the true japan loquat, which is, at the present time, far from being common, although introduced long ago. I believe in Malta it is considered an excellent garden fruit.

Q.

ARTICLE VIII.

ON THE CULTURE OF THE IXIA TRIBE,

BY MR. R. STAFFORD,

Under Gardener at G. B. Strutts, Esq. Belper, near Derby.

I HAVE sent you a very successful method of flowering the Ixia, which has been practised by my father at Willersley for many years. In the first week in September take the bulbs out of the paper bags, and plant about twelve of the largest in each quart pot (32s.) in a mixture of sand and peat, about equal parts covering them about an inch deep; then place them in the open air where they are to remain until the winter frosts render it advisable to place them in the window of a greenhouse, where they should remain until the first week in February, at which time place them in the front of a vinery or some other house, where they will have about sixty degrees of heat, giving them a regular supply of water. In May they will be in full blow, and may be removed to furnish the flower stand, &c. after which place them in the open air, where they should be attended to with water so long as there exists in any part of them a disposition to generate sap. When the roots appear to be perfectly matured, take them out of the pots, clean them, and put them in paper bags, until the planting season in September. Few plants repay us with a profusion of more brilliant flowers than this tribe of bulbous plants. The chief object is the successful culture of bulbs seems to be that of keeping them in a perfectly torpid state until the time you wish to excite them, at which time and during the whole period of their growth they should be kept in as free a growing state as possible. I have no doubt but most of the cape bulbs will blow well under this simple mode of treatment.

R. STAFFORD.

Belper, June 13, 1832.

ARTICLE IX.

ON THE CULTURE OF THE BLETIA TANKERVILLIÆ.

THE Blëtia Tankervilliæ flowered for the first time in this country in the stove of Mrs. Hird, at Apperley Bridge, near Bradford, Yorkshire, to whom it had been sent by Dr. Fothergill, her uncle, in 1776. It is very easy of culture, and will flower freely if potted in

a soil composed of equal parts of light sandy loam, peat, and river sand; let the pots be plunged up to the rim in a bark bed or other brisk heat, during the time the roots are in a growing state, and give a good supply of water; when out of flower and the roots become dormant, take up the pots and place them in a shady situation; allow the soil to become rather dry, until they begin to grow again: as soon as this is observed, repot them and plunge as before directed, they are readily propagated by parting the roots, treated in the same way as the flowering plants.

SERAMALEA.

ARTICLE X.

ON THE TREATMENT OF THE CAMPA'NULA PYRAMIDA'LIS

BY MR. JAMES BROWN, JUN.

At the Gardens of his Grace the Duke of Buckingham, Stowe, near Buckingham.

I DO not know a plant more deserving the attention of the flower gardener, or one that will more amply repay him for his attention, by the brilliancy of its colours, and the length of time it continues in flower than the *Campánula pyramidális*; not only may the professed flower gardener grow this beautiful plant, but any lover of plants who has a spare window, by the following mode of treatment may have it in the most splendid perfection.

In the spring of the year, offsets or cuttings are taken off the large plants intended for flowering, and planted in any shady part of the garden, till they have struck root; they are then taken up, and planted in rows in a very shady situation, where they should remain twelve months from the following March. Some are taken up in the first March after this planting, but are seldom strong enough to flower very large, if they are not planted in a shady place, they generally flower the first year,—they are then taken up with good balls and put into pots from ten to twelve inches diameter; and those who have the advantage of a green-house, should occupy the coolest part of it with them, exposed however to as much light and air as possible; but where there is not the convenience of a green-house, the windows of the dwelling-house would answer very well, or the most sheltered part of the garden, until the month of May, when the plants ought to be under cover. The soil most suitable for them, is

good rich loam and rotten dung, well pulverized; they are not only greatly aided in strength, but also in the brilliancy of their colours, by the richness of the compost they grow in.—I am induced to recommend to your notice this plant, as being one that every lover of flowers may excel in, and I believe that in no part of the kingdom have their perfection been more conspicuous, as in the town of Buckingham. You may see in twenty different parts of the town, a single plant fill a window; and in one particular, a plant in the possession of a tailor, had a leading stem eight feet high, producing a mass of laterals, forming a most beautiful pyramid of flowers, measuring in circumference twelve feet.—The flower gardener requested to produce the best show of flowers, could not exhibit a more imposing and striking appearance than with the campanula treated as above, and turned out into clumps, mixed with an equal number of the *Lobelia splendens* and *fulgens* brought forward in the hot-house in pots. It is much to be regretted, that this plant has been so long neglected, by the common mode of culture, it seldom exceeds three feet high; whereas, if treated as above, it will commonly attain seven and occasionally eight feet, and be equally strong in proportion.—It may be necessary to add, that the plant when growing, ought frequently to be supplied with dung water.

JAMES BROWN, JUN.

Stowe Gardens, June 15th, 1832.

ARTICLE XI.

CULTURE OF THE GLORIOSA SUPERBA.

BY RUSTICUS.

I AM induced from the request of your correspondent, Sage, to send the following account of a method of treating the *Gloriosa superba*, to make it flower freely. About the middle of January, the roots should be potted two inches deep in upright forty-eight pots; the soil used for the purpose should be composed of one-half of loam, one quarter of leaf mould, and one quarter of peat, plunge the pots of roots in a frame or bark bed, where they will receive about eighty degrees of heat, water them very sparingly, until the shoots have grown a little. In the beginning of March, they should be shifted into a size larger pots, being careful not to break the balls, using the same compost as before; then plunge them in a bark bed or

frame, and allow them as much as ninety degrees of heat; when the shoots grow, they must be supported by tying them to sticks, or a temporary trellis: by which treatment they will advance upwards of ten feet high, and flower beautifully. When the stalks have died down, remove the pots from the bark bed to a dry part of the house, when they will be entirely free from any droppings of water, as they must have no moisture during the time they remain in a dormant state. They are readily propagated by dividing the roots, or by seeds which generally ripen very freely.

RUSTICUS.

ARBORICULTURE.

ARTICLE XII.—ON PRUNING FOREST TREES.

BY MR. JOHN HOWDEN.

I OBSERVE, you have introduced some more observations on Pruning Forest Trees, &c. into your Register. One article p. 390, from the pen of G. I. T., and the other p. 406, by Mr. Blakie, of Holkham. What a pity, that these gentlemen so desirous of doing good, should be the means of misleading; they entertain such extraordinary ideas on vegetable physiology. They suppose the leaves of a tree to be its mouths, &c. whereby it inhales nourishment. Now I consider them quite the reverse, and I should not be very far wrong, if I said they were merely the excrements of the timber, or why does the tree discharge them annually, or biennially. The leaves of a tree appears to me no more mouths than the hair on my head, or the wool on a sheep's back; they carry off insensible perspiration, and superabundant sap. Pray, do you think the hole or trunk of the weeping ash, lately planted at Chatsworth, has swelled in proportion to its immense quantity of mouths? I know you will answer in the negative, that tree would have been ten times its present size, with a tenth of its mouths. I am as averse to sawing off *large boughs* from an old tree as any of your correspondents, I would have them cut off before they become *large*. The only way to improve an old mis-shapen tree, is to send it to the sawyers, and plant a handsome one in its place, and afterwards attend to pruning it properly, until it is brought into the form or shape intended, then touch it no more till you fell it for the *timber-merchant*. It is almost impossible to overprune any tree, providing you do not overprune it in any one year. Mr. Bla-

kie's system of foreshortening may do very well for laurels, hollies, and other ornamental trees ; but for timber, it is worse than useless. Lord Bathurst may be very fond of his great *lime trees* ; if I were him, I would cut them down and plant something better. As proofs that the pruning of trees does them no injury, but good, I shall give you the following instances :—A larch tree not far from my window, which I had planted no less than twice before, was mangled by a fat bullock as he was going to the butcher, it was then about seven feet high, in 1816, the bullock broke or bruised every branch, and at last with his horns tossed it clear up into the air ; I planted it again, and cut off all the bruised branches, when it looked little better than a coachman's whip-stick : I have since attended to pruning it every year, and it is now the largest larch in a range of plantations of many hundreds of acres of the same age, being forty-five feet high, and nearly four feet round at the base, tapering regularly to the top, the butt or bole is twenty-five feet of clear wood, and I never mean to touch it again.

Some people are very fond of the picturesque, and would like to see trees feathered to the ground, their *ne plus ultra* would be a tree the shape and size of an Egyptian pyramid. I am also fond of the picturesque, I should like my trees to look like pyramids, but I would have them fixed on pompey's pillars, by this means the manufacturer would give me more for a pompey's pillar, than for all the pyramids put together. The next instance I shall give, is of an *Elm*, which grows opposite to the larch, it is the old English or broad-leaved, which you know is a very spreading tree,—but the timber is much superior to the narrow-leaved Elm,—it had all the appearance of an old tree, or an old gooseberry-bush at seven years old ; it had broke into four limbs at nearly right angles, about four feet high ; I could scarcely determine which limb to call the leader, however, I cut off three of them, and attended to pruning it every year afterwards, it has now a clear straight bole of nearly twenty feet, and three feet in circumference.

JOHN HOWDEN.

ARTICLE XIII.

NOTICES ON FOREST TIMBER.

BY AN ARBORIST.

(Continued from page 594.)

THE SCOTCH FIR thrives at the height of one thousand four hundred feet above the level of the sea, and the timber which grows on the highest elevation is of the best quality, and superior to any foreign timber that is imported. The larch will grow at an elevation of about two thousand feet. It is not improbable, that as this tree was originally introduced from the mountains of Carniola, it will at length degenerate with us, at least as to *perfecting healthy seed*, hence it would be advisable to import annually, at least, a portion of the seed for our nurseries from the alpine regions. The Duke of Athol sold a larch a of fifty years' growth for twelve guineas; a scotch fir of the same age would be only worth about fifteen shillings.

The FIR is the "builders timber," and as when the carpenter wants a post or beam of peculiar strength and durability, he has recourse to the oak: so when the shipwright wishes to have a piece of timber, that shall combine *lightness* with great length, as for a span or mast he makes use of the pine.

THE SILVER FIR attains the height of upwards of one hundred feet; and one of the trees at Woburn exceeds nine feet in circumference, four feet from the ground; and has a clear annually pruned bole of seventy-five feet, the rapidity of its growth, and the value of its timber, which is not liable to warp, are equal to that of any of the pine tribe. Some of the Norway houses, built of entire trees of the red fir or pine, are supposed to have stood upwards of four hundred years. In Guld bransdale, the house is still standing, in which King Olaf lodged five nights, above seven hundred years ago! In the dock yards at Venice, spruce and silver fir from the vallies of Venice, may be seen 40 yards long and 18 inches diameter at the small end.

THE PINEASTER was introduced in 1596, and the STONE PINE in 1570, the seeds are esteemed a delicacy by the Chinese, as well as the natives of the south of Europe, and appear in their ripe state as an article in their choicest deserts.—The advantages derived from planting pines in Upland and heathy parts of the country, which can scarcely be turned to any other profitable purpose are very many. They form a shelter to the little patches of land that are unsuscepti-

ble of cultivation; the thinnings are well adapted for fuel, palings, and many other domestic purposes. Bishop Heber found the pines of the Himalaya mountains, at the height of nine thousand feet above the level of the sea. Two new species of pine, of more gigantic dimensions than any that have hitherto been described in Europe or America, have been found on the western coast of South America; the one grows to the height of 230 feet, and is upwards of fifty feet in circumference at the base, it has a rough corky bark, from an inch to twelve inches thick; the leaves resemble those of the spruce, and the cones are small; the timber is of good quality and very heavy. The other was discovered in Northern California; it is a very majestic tree, and grows to two hundred and fifteen feet in length, fifty-seven feet nine inches in circumference at three feet from the root, and seventeen feet five inches at one hundred and thirty-four feet; the bark is uncommonly smooth, and the whole tree has a most graceful appearance; the cones resemble those of the Weymouth pine, but are much larger, being on an average at least sixteen inches in length.

FILBERTS, under proper management, are a profitable crop in an Orchard, but they are supposed to be great impoverishers of the land. More than one hundred thousand bushels of foreign nuts, are every year consumed in this country, most of which would succeed in our climate.

The Hickory rises to a considerable height, of nearly uniform thickness, as straight as a line, and without any lateral branches; it is therefore very probable, that if these trees were more generally cultivated, they would be found amongst the most valuable in this country.

HOLLIES.—Their superiority, whether in point of utility or ornament, is universally acknowledged, they will thrive upon almost any soil, but thin soiled heights seem to be their natural situations. They make an impenetrable fence, and bear cropping. Many plants, like many animals are furnished with *arms*, these are either *prickles* as in the rose and barberry, which are formed from the outer bark of the plant; or *thorns* as in the hawthorn which are an elongation of the wood, and hence more difficult to be torn off than the former; or *stings* as in the nettles, which are armed with a venomous fluid, for the annoyance of naked animals. Many plants lose their thorns by cultivation, so will animals lose their ferocity, and some of them their horns. Hollies that grow wild in the woods, naturally lay their own branches, which as soon as they touch the ground freely take root; with a little assistance from art, a sufficient number of well-rooted

plants could soon be got, which might safely be transplanted at such an age, as to make almost an immediate hedge.

Hollies and Thorns might be mixed in hedges with a most excellent effect, every third or fourth plant being a holly; for the first four or five years, the thorns will advance fastest, after which, the hollies will naturally gain ground, and at last totally extirpate the others; by planting both, you will soonest have an appearance, and afterwards, by an agreeable metamorphosis, have an entire holly hedge.

LARCHES even upon stony ground, annually shoot between two and three feet. If the soil is dry, the height of the situation is of no consequence. The most superb palaces in Venice, and the forum of Augustus, were built of larch, as were sundry magnificent bridges by Tiberius. Posts of it driven into the ground become almost as hard as iron, and will bear an incredible weight. A larch of fifty-four years' growth in Derbyshire, measured in 1809, eighty-three feet and a half of timber; the Duke of Athol was offered twenty pounds for a single larch of fifty years' growth. The thinnings used for upright paling, rails, and hurdles, with the bark on, are more durable than oak-copse-wood of twenty-four years' growth. Four larches will grow where only one oak or beech would occupy, and are the better for being crowded, whilst the two latter suffer materially from it. The *pruning* of larches makes them grow with *great vigour*, by repeated experiments, it appears that plants which were *pruned* advanced at the rate of *four years in six*, before those which were not pruned; this treatment should be attended to *every year* either winter or summer, after they have been planted out.

THE NORWAY MAPLE grows to a large timber tree; its leaves are of a shining green colour, and are as large or larger than the common sycamore; their edges are acutely and more beautifully indented, they are not so liable to be eaten by insects in the summer, and in the autumn they die of a *golden yellow colour*, which causes a delightful effect at that season, when the different tints of the decaying vegetable world are displayed; the flowers also are beautiful, they come out early in the spring, are of a fine yellow colour, and shew themselves to advantage before the leaves come out.

OAKS, in Ampthill Park, are particularly celebrated for their great size and age; several of them are supposed to be upwards of five hundred years old, and some persons do not hesitate to say, above a thousand; the growth of many of them is ten yards or considerably more. A survey of this park, by order of the Conventional Parliament in 1653, pronounced two hundred and eighty-seven of these oaks hollow, and too much decayed for the use of the navy. The whole of these

remain to this day, and may perhaps continue two or three centuries longer; some few of them have been scathed by lightning. There are calculated to be seven thousand three hundred and sixty acorns in bushel. In the New Forest, Evelyn counted in the sections of some trees, four hundred concentric rings, or layers of wood, each of which must have recorded a year's growth.

THE TURKEY OAK in many situations is more profitable than those of our own country. The Duke of Tuscany's princely domain at Pisa, is partly overgrown with woods of evergreen oak, (*Quéscus Ilex*), to which the situation is so congenial, that many of them measure twelve feet in circumference, and the shade of single trees is found to be seventy or eighty feet broad; the foliage is small of a dull dark green, and the acorn when roasted is palatable.

Although the TEAK TREE (*Téctona grándis*) is a tree of quite a different family from the oak, and a native of India, it is used in ship-building like the oak, and has some resemblance to it in its timber. It is a tree of uncommon size, with leaves twenty inches long and sixteen broad, and bears a hard nut. Besides its value as timber, the teak has beauty as a tree; it is found more than two hundred feet high, and the stem, branches, and leaves are all very imposing.

THE ABELE TREE (*Populus álba*) is a tree of extremely quick growth, and is equal to the best mahogany in colour and smoothness of surface; and much superior to the Plane, or inferior sorts in those respects, as well as transparency and variety; and it has the further advantage over mahogany and most other woods, that it takes but little oil or rubbing, to produce upon it that sort of mellow shining surface so much admired in furniture, that it has been some years subject to proper attention.

AN ARBORIST.

RURAL AFFAIRS.

ARTICLE XIV.

ON PREPARING POTATOES AS FOOD.

BY SOLANUM.

YOUR correspondent "G. I. T." (p. 441) with the aid of the ingenious president of the Horticultural Society, has shewn how the enormous quantity of 670 bushels of potatoes, of 80lbs. to the bushel, may be produced in one statute acre of land. Will you give me leave, with

the assistance of even a more celebrated character, to place before your readers the best mode of preparing this valuable crop for the table?

Most English cooks, I apprehend, think the boiling of potatoes rather unworthy much attention, hence we frequently find these roots but indifferently dressed. In Ireland, on the contrary, that potatoe fed population have brought the art of cooking them to great perfection.—Guy says,

“Leek to the Welch, to Dutchmen butter’s dear,
Of Irish swains potatoe is the cheer.”

The following accords with the Irish mode of preparing potatoes as food, and is from the pen of Benjamin Count Rumford, the eminent person above alluded to, whose successful exertions in the application of science to the purposes of ordinary life, have contributed much to the comforts of mankind.

“The potatoes should be as much as possible of the same size, and small ones boiled separately; they must be washed clean, and, without paring, put into a pot with cold water not sufficient to cover them as they will themselves produce a considerable quantity of fluid before they boil; they do not admit of being put into a vessel of boiling water like greens. If the potatoes are tolerably large, it will be necessary, as soon as they begin to boil, to throw in some cold water, and occasionally to repeat it, till the potatoes are boiled to the heart, which will take from half an hour to an hour and a quarter, according to their size, they will otherwise crack, and burst to pieces on the outside, whilst the inside will be nearly in a crude state. During the boiling, throwing in a little salt occasionally is found a great improvement, and it is certain that the slower they are cooked the better. When boiled pour off the water, and evaporate the moisture, by replacing the vessel, in which the potatoes were boiled, once more over the fire: this makes them remarkably dry and mealy.”

SOLANUM.

April 25th, 1832.

ARTICLE XV.

ON THE METHOD OF COOKING TOMATOES.

BY A CONSTANT READER.

How desirable it would be that your excellent work should occasionally contain receipts for the cookery of the many vegetables that have lately been introduced into our gardens, in the uses of which most people are totally ignorant. I am aware that the *Gardeners*

Magazine, has papers to that effect, and to make a beginning in the *Horticultural Register*, here is one, if you think what I am writing worth notice.

Peel a dozen ripe tomatoes, and fry them in a little salad oil, with two or three green capsieums cut up, and sprinkled with a little salt. A sliced onion or two also may be added, if approved of, or butter used instead of oil.

This is a Spanish dish, and it is presumed, will be found excellent by most people.

A CONSTANT READER.

June 29, 1832.

NATURAL HISTORY.

ARTICLE XVI.

NOTICE OF A BIRD CALLED THE MARCH COCK, MIGRATION OF GOLD FINCHES.

BY HIJO DE HESPANA.

IN reference to Professor Rennie's communication inserted at pages 559—60, of the *Horticultural Register*, where mention is made of M. Natterer having shot a species of bird, nearly allied to the *Philomela atricapilla*, at Algeziras near Gibraltar, brought strongly to my recollection, the circumstance of my having, when a youth, been on a shooting excursion with two or three friends about the same spot, and meeting with a bird which perched on a tree near where we were passing. I had a distinct but very transient view of it, for one of the party immediately fired at it, and though within short range of shot, unfortunately missed it. The bird appeared of the size of the common Bantam, with white plumage and arched feathers in its tail, and is known in that part of Spain by the name of the March Cock, by reason of it never having been seen at any other season of the year in lower Andalusia, than in that month.

I have heard my father state, that being on a return-voyage from Oram, on the north coast of Barbary to the Straits, a March Cock alighted on one of the yards of the vessel, and was so exhausted as to permit its being taken, without any difficulty; the bird, notwithstanding its having rejected various kinds of food that was presented to it, for several days prior to its arrival at Gibraltar, continued alive

and well, and on its being brought on shore, was, as a last resource, tried with worms, these were put into a shallow receiver, slightly covered with earth and placed in a room, where the bird was permitted to run loose. It soon discovered the worms by thrusting its beak into the dish, and having secured one, was observed to throw it into the air, and in its descent, recaught and swallowed it,—the same process took place with a second and a third.—This bird has, I understood, the peculiar faculty of expanding its comb, whenever it alights, like a fan, which in its flight is invariably collapsed.

Goldfinches migrate in great numbers in the spring, across the straits of Gibraltar from Barbary to Spain, and return in the autumn.

Partridges are found in great numbers, in the immediate neighbourhood of Tetuan on the south side of the Straits; these are beautiful birds with red legs, and are similar in every respect to those found on the rock of Gibraltar.

HIJO DE ESPANA.

ARTICLE XVII.

ON THE DESTRUCTION OF BEES BY TOADS.

BY MR. G. BUCKLAND.

THE following account of the destruction of Bees, by the common Toad, (*Berfo Communis*) was sent me some time since by a friend, in the accuracy of whose observation I can confide. Should you deem it of sufficient interest to occupy a space in your *Register*, it is much at your service; and I hope that it will be the means of eliciting further information from some of your correspondents.

G. BUCKLAND.

Benenden, Kent, June 11th, 1832.

“As I was fetching some water from a pond, on the side of which grew a plant, called Water Betony, I observed a bee gathering from its flowers. Being curious to know whether the little industrious labourer came for honey, or merely to collect on its legs for the purpose of breeding, I observed it very attentively, and as it descended to the lower part of the flowers, I felt somewhat surprised that it had escaped my observation. While reflecting on this circumstance, another bee alighted on the top of the same plant, and proceeding, like the former one downwards, I heard a little smack, and observed

the bee go off the flower into a large cluster of grass. This excited my curiosity to see whether it went into the ground, and to my surprise, I found concealed under the grass a large toad, which was seated in a little hollow of the earth: I then felt quite satisfied, that the toad had devoured both the bees. About eight or ten days afterwards, in the evening of a very warm day, as I was standing to behold my bees return weary and heavy laden to their hives, (for when the sun is setting, they always appear weary and weakly,) I observed that several dropped short of the landing board, and settled on the leaves of a mallow, which grew beneath the mouth of the hive. While thinking when they would rise, I heard a loud smack, and saw a bee go from the edge of a leaf into the mouth of a large toad, which was seated under the mallow, at the distance of seven inches from the bee. I then hastened for my uncle to come and see, which he did, and we suffered the same toad to suck in three more, the distance of one bee was nearly nine inches. The toad's mouth was so far opened, that I could see the bees in the mouth, before it closed, and I believe that they were swallowed whole."

ARTICLE XVIII.

THE DESTRUCTION OF THE WIRE WORM.

BY M.

AT one of the Holkham meetings some years ago, Lord Albermarle stated, that he had accidentally discovered a remedy for the Wire Worm, but since his speech was given in the *Farmer's Journal* for that year, I have never seen it noticed in any way whatever, I therefore transcribe the particulars as detailed by his Lordship (from memory.) His Lordship informed the company, that he had drilled a field with wheat, intending at the same time to have deposited with all the seed, rape cake as manure, but more of the latter having being used than had been calculated upon at the commencement of the work, part of the field was drilled without any manure, and that part only had suffered from the wire worm. Unwilling, however, to promulgate this accidental discovery, without trying the experiment again, his Lordship, the following year had wheat drilled, and afterwards sowed with rape cake, in powder, across the field in an oblique direction, and the result was again as before stated, viz. only that part of the field was free from the wire worm, which was sown with rape cake.

M. ———

ARTICLE XIX.

ON SERPENT'S EGGS.

BY A. M.

THE Rev. Michael Russell, L. L. D., under the Zoological treatise of animals, mentioned in Scripture remarks, on the generation of serpents, "the only difference between the oviparous and viviparous is, that in the former the eggs are laid before the fœtus is mature in the latter, the fœtus bursts the egg while yet in the womb of the mother." There has been doubts whether the adder be oviparous or viviparous,—certain it is, that the eggs lay as above described, and I should have no difficulty in procuring you a female adder to send you, if you wish to satisfy yourselves by dissecting it.

A. M.

ARTICLE XX.

ON VEGETABLE ANALYSIS.

BY MR. A. GODWIN.

THE economy of animal and vegetable existence is obviously similar, and even in matters not very obvious ; a thermometer, put in an augur hole in a tree, will shew that the plant in winter is warmer by many degrees than the atmosphere ;—the tree can resist cold, by its moisture not freezing so soon as the water in its neighbourhood.—Plants shut up their leaves, and sleep in the night, betray irritability and sensibility.—A wounded tree on a frosty day, when the sun shines, will bleed profusely on its south side, but shew no signs of sap on the north, &c. &c. A rainy season opposes the developement of the saccharine principle, as well as the formation of resins and aromatics. A dry season is unfriendly to mucilage, but otherwise to resins and aromatics. Cold weather is inimical to all these, except mucilage, which is the principle of increase in the bulk of plants ; hence trees in cold climates are most agreeable in their appearance.

A. GODWIN.

ARTICLE XXI.

ON THE STUDY OF ENTOMOLOGY—BY RUSTICUS.

(Continued from page 603.)

Section 1st—ADEPHAGA Voracious—Subsection 4th, NECROPHAGA;
Beetles that feed on Carrion, &c. continued.

Family XIX.—NITID'ULIDÆ; 6 genera.

- | | | |
|----------------|----------------|-----------------|
| 1. Thymàlus, | 4. Cámpta, | 7. Carpóphilus, |
| 2. Nitidùla, | 5. Meligèthes, | 8. Caterètes, |
| 3. Stróngylus, | 6. Prìa, | 9. Micropêplus, |

Family XX—E'ngidæ.—26 Genera, many of which are exceedingly minute.

- | | | |
|------------------|----------------|------------------|
| 1. Trichópteryx, | 10. Byphíllus, | 19. Rhyzophàgus, |
| 2. Atomària, | 11. Triplax, | 20. Monotòma, |
| 2. Typhœa, | 12. Tetratòma, | 21. Crypta, |
| 4. Cryptophàgus, | 13. E'ngis, | 22. Silvànus, |
| 5. Antherophàgus | 14. Ips, | 23. Bitòma, |
| 6. Bytùrus, | 15. Nemosòma, | 24. Corticària, |
| 7. Mycetœa, | 16. Sychìta, | 25. Latrídius, |
| 8. Triphy'llus, | 17. Cérylon, | 26. Ly'ctus, |
| 9. Mycetophàgus, | 18. Cicones. | |

Family XXI. DERMESTYDÆ.—4 Genera.

- | | | |
|--------------|---------------|---------------|
| 1. Throscus, | 3. Attagènus, | 4. Derméstes, |
| 2. Megatoma, | | |

The leather-eater (*Derméstes lardàrius*) is destructive to meat, and is a very unwelcome intruder into the cabinets of the curious, the larvæ feed equally well upon dried skins, bark of trees, rotten wood, seeds, flowers, and the carcasses of dead animals, and is often found deeply buried in old bacon, &c.

Section 2nd—Chilognathomo'rpha, *Chilognathiform Larvæ*.

Subsection 1st—Clavicornes, *with clavati sublaminate Antennæ*.

Family XXII.—BYRRHIDÆ—7. Genera.

- | | | |
|------------------|-----------------|-----------------------|
| 1. Authrenus, | 4. Nosodéndron | 7. Chætophora, Kirby. |
| 2. Trinòdes, | 5. By'rrihus, | |
| 3. Aspidéphorus, | 6. Simplocària. | |

The Larvæ of the Anthrèmus Museòrum, are among the most de-

destructive pests of our cabinets, for if once they get among the specimens, the havoc they make is truly astonishing; the birds are soon stripped of their feathers, and the insects fall to pieces; these larvæ are covered with bunches of diverging hairs, which enables them when caught to glide through your fingers, as though they were lubricated with oil; scarcely any thing in the cabinet escapes them. De Geer even says they will feed upon horn.

Family XXIII.—HISTERIDÆ.—5 Genera'

- | | | |
|-----------------|------------------|---------------|
| 1. Abræus, | 3. Híster, | 5. Platisoma, |
| 2. Onthóphilus, | 4. Dendróphilus, | |

Subsection II.—LAMELLICORNES.—With laminate Antennæ.

Family XXIV.—Lucanídæ.—4. Genera.

- | | | |
|----------------|------------|-----------------|
| 1. Platycèrus, | 2. Dòrcus, | 3. Lucànus, |
| | | 4. Sinodendron, |

Family XXV.—SCARABÆIDÆ.—3. Genera.

- | | | |
|------------|-----------------|-----------------|
| 1. Copris, | 2. Onthophagus, | 3. Oniticèllus, |
|------------|-----------------|-----------------|

Family XXVI.—GEOTKU'PIDÆ—Genera.

- | | | |
|----------------|-------------|---------------|
| 1. Bolbocèrus, | 2. Typhæus, | 3. Geotrùpes. |
|----------------|-------------|---------------|

Family XXVII.—APHODIIDÆ.—2. Genera.

- | | |
|--------------|----------------|
| 1. Aphòdius, | 2. Psammòdius. |
|--------------|----------------|

Family XXVIII.—TROGIDÆ—3 Genera.

- | | | |
|-------------|-----------------|-------|
| 1. Ægiàlia, | 2. Trachyscèlis | Tróx. |
|-------------|-----------------|-------|

Family XXIX.—DYNASTIDÆ—2. Genera.

- | | |
|-------------|--------------|
| 1. Oryctes, | 2. Dynástes, |
|-------------|--------------|

Family XXX.—MELOLONTHIDÆ....7 Genera.

- | | | |
|----------------|----------------|-----------|
| 1. Sérica | 4. Melolóntha, | 7. Hóplia |
| 2. Omalóplia, | 5. Anómala, | |
| 3. Zanthèumia, | 6. Anisóplia, | |

One of the most destructive ravagers in our pastures is the larvæ of the may-bug, or cock-chaffer, (*Melolóntha vulgaris*) well known in the southern and midland districts of England, as well as Ireland, where it is called the Connought worm; the perfect beetle lives but about eight or ten days. The female deposits her eggs in a cluster about a span below the surface of the earth, in a hole, which she digs for the purpose. The larvæ continues to undergo various transformations for three years, and makes its appearance about the beginning of May, in the fourth year, as a perfect beetle. To obtain a more perfect understanding of their economy, Rosel put some females

into glasses half filled with earth and covered with a tuft of grass, and in a piece of muslin; in a fortnight, he found some hundreds of eggs deposited, placing the glasses in a cellar they were hatched towards autumn, and the grubs increased remarkably in size. In the following May. they fed so voraciously. that they required a fresh turf every second day; but this proving too scanty, he sowed in several garden pots, peas, lentils, and salad; and when the plants were up, he put a pair of grubs in each pot, and in this manner he fed them through the second and third years; during this period they cast their skins three or four times, going for this purpose deeper in the ground, where they may effect this change undisturbed, and they do the same in winter when they become torpid and do not eat.

When the grub changes into a pupa the third autumn after it is hatched, it digs a similar burrow, about a yard deep, and when kept in a pot, and prevented from going deep enough, it shows great uneasiness, and often dies. The perfect beetle comes forth from the pupa in January or February, but does not acquire its hardness or colour for ten or twelve days, and seldom makes its appearance above ground before May, being the fourth year from the time of hatching, during all this time it feeds upon the roots of herbage, sometimes destroying whole acres of grass, it undermines the richest meadows, and so loosens the turf that it will roll up as if cut with the turfing spade. A poor farmer, near Norwich, suffered so much from their depredations some years ago, that the court of the city allowed him £25 out of pity for the great damage he had sustained, and the man and his servant declared that they gathered as many as eighty bushels of the insect. In the year 1783 many provinces of France were so ravaged by them, that a premium was offered by the government for the best method of destroying them. They do not confine themselves to grass, but eat also the roots of corn, and it is to feast upon this grub chiefly that the rooks follow so attentively the plough. Both forest and fruit trees sometimes suffer materially from the ravages of the perfect beetles, in connection with the summer-chaffer or Fernweb (*Zantheùmia solstitiális*), and the braken clock, (*Anómala Horticòla*) which unitedly devour the leaves of the sycamore, lime, beech, willow, elm, apple, &c. &c. and are sometimes so numerous as to strip whole trees entirely of their foliage. Mouffet relates that in 1574, such a number of the common Chafer (*M. vulgaris*) fell into the river Severn as to stop the wheels of the water-mills. It is also recorded in the philosophical transactions that in the year 1688 they filled the hedges and trees of part of the county of Galway in such immense numbers as to cling to each other like clusters of bees when

they swarm; on the wing they darkened the air, and produced a sound like that of distant drums; when they were feeding, the noise of their jaws might be mistaken for the sawing of timber. The *Anómala Horticòla* attacks and devours the leaves of the raspberry, and is often found exceedingly troublesome, particularly in some parts of Nottinghamshire, where the gardens are bordered by the forest.

Family XXXI....CETONIADÆ....2 Genera.

1. *Tríchius*, 2. *Cetònia*.

The Green Rose Chafer (*Cetònia auràta*) is one of our prettiest native insects, and may be found reposing in the rose blossoms, or flying about the trees, making a considerable humming noise, about the end of May, or the beginning of June; the female burrows into light soft ground, and deposits her eggs about the middle of June; the grub feeds on the roots of trees, when about to enter into the pupæ state, they prepare themselves a cocoon composed of earth, pieces of rotten wood, and any substances within reach, which they fasten together with a glutinous secretion; the length of its life in the perfect state has not been ascertained. Rösels informs us, he fed one with fruit and moist white bread for three years.

RUSTICUS.

(*To be continued.*)

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

BRITISH FLOWERING PLANTS,

FOUND IN OXFORDSHIRE AND ITS CONTIGIOUS COUNTIES.

Described in Walkers Flora, drawn from Nature, and engraved under the direction of Mr. Wm. Baxter, A.L.S.F.H.S. &c. Curator of the Oxford Bot. G.

THE object proposed in the present work, is to supply the lovers of Botany with a set of figures, which may be relied on with accuracy, while every unnecessary expense will be avoided. With this view, it was at first proposed to reduce the size of the plants on a plan similar to that in "Maund's Botanic Garden," but this was not found compatible with sufficient distinctness and accuracy. It is intended to divide the work into three series. The first to consist of one plate to each Genus, as a guide to Students. The second to comprise the remainder of the Oxfordshire flowering plants, and the third (if called for) to complete the "British Flora;" How well able Mr. Baxter is to conduct a work of this kind. The situation he holds at once testifies, which is all we can say of the Editor, as we have not the pleasure of personally knowing him; we are glad that the pecuniary circumstances and conveniences of young gardeners and botanists are not forgotten or neglected, although we think there will be a very important deficiency in this work when bound up in volumes, and unless that deficiency be remedied (which may easily be done) much of its real value will be detracted. For instance, the present No. before us, contains two coloured figures.—The snake's head, (*Frittilària meleàgris*) and the wild tulip, (*Tulípa sylvéstris*), their localities, time of flowering, duration, &c. &c. are printed on the outside of the cover, when therefore the coloured figures are divested of these covers for binding, they are stripped of some of the most interesting intelligence to young gardeners. The low and accommodating price, no doubt, precludes the possibility of inserting letter-press in each number. What we would recommend is, that when a sufficient quantity of numbers are published to form a volume, let the number be printed to bind up with them, containing all the necessary information, together with an index; this will meet, we conceive every deficiency, and make the work calculated to be of much service, and consequently well deserving of encouragement.

EXTRACTS.

HORNICULTURAL INTELLIGENCE.

ON THE VARIETIES OF THE PINE APPLE.—(Continued from page 608.)

16. STRIPED SURINAM, silver striped of Speechly and Nichol. Pink Surinam, striped Surinam, and Ribbon Grass, and Prince of Wales's Island, of the Hort. Soc. Cat. This is very beautiful both in leaf and fruit, but a very worthless variety, being both a shy grower and fruiter. Leaves beautifully striped with dark green and delicate white, tinged with a fiery red. Fruit cylindrical, marbled with red, green, yellow, and white. Pips small, rather prominent and covered to the extent of one-third by the scales, which terminate in narrow sharp points. Flesh dullish yellow, very acid, and moderately flavoured. Crown middle sized, of the same character as the leaves. Not worth growing.

17. SIERRA LEONE. Leaves long, broad and rather flaccid, with revolute undulated edges, of a clear bluish green, and, from the circumstance of it being a free grower, often considerably blotched with a darker colour. Spines short, middle sized, and regular. Flowers purple. Fruit cylindrical, of a dull green colour tinged with red; when ripe, it gradually changes to a dull ochre colour, thickly covered with meal. Pips rather below the middle size, and slightly prominent. Scales covering nearly one of the pips, and terminating in lengthened reddish coloured points; when approaching maturity, it gradually changes to a dull ochre colour. Flesh very pale yellow, almost white, tender, abundantly juicy, free from fibre, crisp and melting; sweet without acidity; pleasant though not rich. Crown large and rather sweet, often accompanied by gills at its base, leaves numerous; it is also inclined to emit suckers at the base of the fruit, and those on the stem are inclined to fruit before the other is half matured.

18. ANSON'S. Anson's Queen, Lemon Antigua, of the Hort. Soc. Cat. Leaves long, rather more slender and erect than in the Otaheite, to which it bears a considerable resemblance, particularly in the spines and flatness of the leaves. Flowers purple. Fruit cylindrical, before ripening of a darkish green and rather mealy; when ripe of a bright lemon colour. Pips rather above the middle size, prominent at the margins and depressed in the centre. Scales covering half the pips, and ending in narrow acute points. Flesh white, opaque, entirely without stringiness, very sweet and pleasant, but without acidity. Crown middle sized, leaves not very numerous. Weight of fruit from three to five pounds, not of much excellence.

19. MONTSERRAT. The Copper, Cape Coast, Bogwarp, Red Ripley, New Ripley, Copper Coloured Antigua, Cochineal, and Brazil, of the Hort. Soc. Cat. Old King, St. Kitts, Malacca and Sumatra, of some gardens. Antigua Rubra of the French.—Indian Creole and Cockscomb, in St. Vincents, and Chevaliers in Sierra Léone. Easily distinguished from all other varieties by the dark purple colour of the spines, which are small and irregular; good specimens of it will weigh from three to five pounds. Flowers purple. Fruit cylindrical, sometimes broader at the top and narrower downwards; before ripening, dark green and mealy, afterwards of a pale orange tinged with a copper-colour. Pips middle sized, and rather flat. Scales covering one-half the pips, of a deep red towards the points, which are rather lengthened. Flesh solid, lemon-coloured,

semi-transparent, somewhat mealy, juicy and acid, without much flavour or sweetness. Crown rather large, leaves numerous. This is rather an inferior variety, not worth growing to any great extent. *Hort. Trans. vol. i. part 1.*

ON THE USE OF CAMPHOR IN HORTICULTURE. Camphor is dissolved in alcohol until the latter is saturated; the alcohol is then put into soft water, in the proportion of two drops to half an ounce. Withered or apparently dead plants, put into this liquid, and allowed to remain there from two to four hours, will revive, if they have not been completely dead before being put in.—M. DROSTE. *Pruss. Gardening Society.*

ON THE PROPAGATION OF VINES. Cuttings are made from one foot and a half to two feet in length, and all the buds removed from them except one at the upper extremity. The shoot is then laid in the soil, to the depth of six inches, the end heaving the bud being brought up to the surface. A vigorous shoot is made in the first year; and the second year, the plants if not removed, will bear fruit.—M. FINTELMANN, *ib.*

ON THE DISEASES OF PLANTS.—The roots of plants may be wounded by instruments used in working the ground; from the attacks of subterranean animals, such as moles, rabbits, mice, and a whole host of insects: the last of which injure roots chiefly in the larva state, by devouring the minute rootlets, and when in great numbers the fibrils often suffer in a great degree, being either broken by those which undermine for shelter, or eaten by others, and thus the plants are in a great measure deprived of their wonted supply of nourishment. The fibrils of roots are often broken, among plants of the pine tribe, by being violently shaken by the wind &c. and although none of the roots appear above ground, or even when the soil is scarcely broken around them, they suddenly decay, being deprived of nourishment, by the loss of the tender fibres; after wounds of roots, many trees remain apparently stationary in growth for a time, engaged, however, in forming roots according to the loss sustained. The operation of cutting, or laying bare, roots of trees, to force them to become fruitful, is only an apparent exception to the foregoing remarks, for the production of fruit in such cases, must be considered as the first step towards decay, it depending not so much on a full supply of nourishment, as on a state of maturity necessary for the purpose. Treatment.—When the roots have been attacked by insects, endeavour to destroy them; the most approved solution is lime water and tobacco water, poured upon the ground over the affected parts; even unslacked lime has been dug in with advantage. To entrap the wire-worm (*Elates segetis*) Sir Joseph Banks recommends slices of potatoes to be buried where they abound, and frequently examining the baits and destroying such as have collected on them. When a plant happens to have its roots lacerated, these ought to be protected from extremes of heat and cold; the ground in the neighbourhood should be kept moderately moist; if possible the plant itself shaded; and whatever else may be found conducive to its health, should be resorted to, to induce the formation of new roots.

GANGRENE OF ROOTS.—This occurs often in roots, and is of two kinds,—wet and dry gangrene. An example of the first kind occurs frequently from too much moisture, accompanied with cold weather and a bad soil, or in consequence of the succulent nature of the parts in which it occurs. It is frequently found in “house plants,” when these have been officiously indulged with too much water. Dry gangrene in roots is similar to that in the stems, and is noticed under that head.—

LACERATED AND INCISED WOUNDS OF LEAVES.—These occur from attacks of animals, chiefly of the insect tribes : from hail, and many of the lower animals are very destructive to leaves whilst feeding. Some birds seem to do so for amusement. The *Aphis centuncularis* cuts out portions of leaves, and carries them away for its use. Plants frequently become stripped of their foliage in a short time by the ravages of the caterpillars, of butterflies and moths, although generally they are more sparing in their attacks. These with many others attack most plants fit for the food of man. Various methods have been had recourse to for the destruction of caterpillars; washing with tobacco-water and soap, lime-water &c. boiling water has also been tried with success, for those insects which seek the ground at particular seasons, unslaked lime laid on, and dug in is advantageous. There is what might be termed an approach to a natural cure for this infection, in the larvæ of an aphidivorous fly which is described and represented by Darwin which will also feed on caterpillars. Mr. Elliot's remarks on the subject "when the foliage is all off the trees and bushes, wash them over with the hand-engine to clear them off decayed leaves : for this purpose any water will do ; then stir up the surface of the earth all round their roots. and lay a little hot lime about them to destroy the eggs." Hail is a frequent cause of wounds in leaves ; and to ward off these destructive "showers," "paragrelis" have been used on the continent. The most approved kind consists of a pole of wood from thirty to fifty feet long, fixed perpendicularly in the earth, having a brass wire sharpened at the point, running from two to three inches above the summit down into the ground. These should be planted at the distance of from one to two thousand feet from each other. By their influence on the elective state of the atmosphere, the hail is said to be melted down to snow or rain, the descent of which does comparatively little mischief. It is chiefly in southern climes that these are required. Plants receiving wounds in their leaves, must be protected from extremes of heat and cold, from too much moisture, and altogether treated more carefully than usual, according to the habits of the plants affected.—

PUNCTURED WOUNDS OF LEAVES. Leaves are punctured by various insects for two purposes, viz. for the purpose of procuring food, and for Oviposition. The most remarkable insect of the first kind is the Aphis, which attack the under surface of the leaves, and young stems, sucking the sap of the plant by inserting their curious proboscides.—From these wounds, the leaves become variously distorted in shape, generally assuming a blistered appearance, in consequence of the irritation from the punctures at particular parts ; and sometimes several of these diseased portions may be seen rising nearly half an inch on the surface of a leaf otherwise healthy, the concavity of these are found to contain numerous Aphides ; such distortions are generally of a whitish or reddish colour, which will be explained shortly. On the leaves of the Maple tree, round purple tumours, with narrow necks, are often found projecting from their upper surface, having a small opening leading into them from the under surface, nearly closed, however, by a number of morbidly enlarged hairs. These, we believe, to be the effects of punctures by the Aphis. Small white tufts are often seen attached to the leaves and stems of the larch ; these are produced by a brown Aphis, and when examined by the microscope, are seen to consist of a bundle of fine filaments, generally twisted around the animal, and attached to the extremities of many ; oval-shaped eggs are also frequently seen. Various methods have been proposed and practised for the destruction of the Aphis. The most effectual

appears to be fumigation with tobacco-smoke, followed up by washing with lime-water, and finishing by digging the ground around the plants. Leaves are frequently found traversed by white lines, twisting and running in all directions,—they are caused by the larvæ of certain insects, which eat their way through, leaving their excrements behind them in their paths; and so neatly do they perform their works of destruction, that by far the finest dissection we have ever seen, were the works of some of these animals. They burrow under the cuticle, and generally confine themselves to the upper surface of the leaf, sometimes to the lower, occasionally however both are attacked; such we have observed in the leaves of many plants, and believe it to be in consequence of the larvæ piercing the leaves. Some insects lay their eggs close to each other on the back of the leaves of certain plants. After a time these become hatched, and the larvæ, each for itself, pierces a small hole immediately above the attachment of the egg from which it came, and passing through the leaf, arrives at the upper surface, where it commences its mining, covered only by the cuticle; these do not traverse the leaves like the others, but confine themselves to one part. The leaves of apple and pear trees are very subject to this affection. The treatment of such is not as for the Aphis, in consequence of the protection they receive from the cuticle. The most powerful remedy is boiling water.

WOUNDS OF LEAVES WITH OVIPOSITION. The most curious effects produced by the wounds of insects, are the various kinds of galls. These are tumours produced on various succulent surfaces, varying according to the insects which effect them, or the plants in which they occur. They are caused by insects of the order Hymenoptera and Genus Cynips, and occur in a variety of plants, but most frequently in the oak and willow.—It is very evident, that these various excrescences must materially injure the health of the plants on which they occur, from the inordinate consumption of substance required for their nourishment; and this is found to be the case, for when they occur in great numbers, from the excess of nourishment drawn off, the branch, or even the whole plant suffers, the leaves become distorted and small, and the whole plant stunted in growth. They scarcely admit of a *cure* in many plants. The method we would recommend in the early stage, is the application of boiling water; afterwards, when of considerable size, nothing but their removal will be of service.—

PARASITICAL PLANTS ON LEAVES. Leaves are liable to become attacked by various cryptogamia plants, from circumstances not well ascertained. The most familiar of these diseases is known by the name of "*Mildew*" (*Sporotrichum macrosporum*;) certain circumstances seem particularly favourable to its appearance, as cold dry weather, and particular exposures; plants under the shade of others, or otherwise shaded, apparently suffering more than those fully exposed. From microscopical observation, this parasitical plant, constituting "*Mildew*" seems to be composed of globular semi-transparent masses, apparently sometimes attached to a stalk, sometimes to hairs on the plant, or collected into heaps on the surface of leaves and stems.—Amongst the remedies proposed, perhaps the best is thinning around the affected part, or removing to more light and air. Delicate and rare plants may have their leaves washed with water. We have found lime-water of service on apple trees. In hardy plants slightly affected, remove all the diseased leaves or shoots, and attend to the other circumstances mentioned. An apple-tree annually affected, was perfectly cured by a free washing of what is termed the "*cream of lime*," during the winter; from

this case we are inclined to think, that the seeds of the parasite remain about the buds and stems, until a fit period arrive for their evolution.—The red, termed "*Rubigo or rust*" (*Uredo salicis*) occurs on the leaves and stems of many plants; there is also a black kind, termed "Smut" (*Uredo segetum*.) It is most destructive to wheat, oats, &c., which are also very often affected with the red kind. According to the experiments of Mr. Young on this subject, it appears, that the best and simplest method for the prevention of these parasitical diseases in corn, is to steep the seeds of affected plants in lime-water for twenty-four hours. When either the black or red parasite appears on other plants, treat them as for the Mildew. The leaves of several plants belonging to the kitchen-garden, viz. horse-raddish, cabbage, &c. are sometimes attacked by a parasitical plant (*Urèdo candida*) in appearance not much unlike the "*Mildew*" to the naked eye, this disease has been found from experience to be highly infectious. The gooseberry tree is liable to be affected in spring by a curious parasitical disease, (*Æcidium Grossulariæ*; vide page 466.) The only remedy for which, as well as the former one, is the removal of the affected leaves, and this can be done generally with safety, as these diseases seldom involve many on the same plant at the same time.

DISCOLORATION OF LEAVES. Upon certain laws which regulate the proportion of Acid and Alkaline matter, depend the colours of the leaves of plants, and these we know to be as various as the shades in the rainbow,—a certain proportion of these matters appears to be allotted to each; any deviation from which, generally more or less, injures the health of the plant. The most usual morbid change of colour in leaves is from green to white, either of the whole or only part of a leaf. Mr. Knight has observed, that plants with white leaves cannot survive long, and that variegated ones bear the deprivation of the light ill: but he believes there are many such which are neither in a state of disease nor debility. This indeed seems to be the case with some, but there are very few which will not be found to suffer in various degrees from the variegation. Morbid discoloration happens from various causes, which counteract the natural influence of light on the leaves, and it may ultimately be in consequence of the obliteration of the pores, or "*culs de sac*," according to Mr. Todd Thompson, by which respiration is performed. In such cases, the blanched portions may obtain a quantity of carbonic acid, from that absorbed by the green portion of the leaf; but when all white, the acid, it is possible, may be obtained by the roots or stems. However, it is agreed, that it is from the accumulation of carbonic acid which takes place, such portions of the leaves being unable to decompose it, that the change of colour happens, and which, indeed, seems to vary according to the excess of acid present. A want of proper nourishment, is a frequent cause of discoloration, also absence of light, and attacks of insects, as in the white and red tumours of the Aphis; again, from the destruction of roots or other vital parts; and indeed, any thing which tends to injure the health of the plant generally, is apt to produce discoloration of the leaves.—

GANGRENE OF LEAVES.—All the diseases described are apt to cause gangrene, either in the whole or a portion of a leaf.—

WOUNDS OF THE STEM.—The stem is very subject to wounds of various kinds, according to the nature of the instrument by which they are inflicted, and the particular texture involved. Wounds which penetrate or remove a portion of the bark, as indeed all others, heal the quicker the more vigorous the branch or plant is in which they occur, and of course according to their dimensions; all

wounds heal more rapidly from above downwards than in any other way; no doubt stimulated by returning juices. The most serious wounds of the bark, are those which detach it to a great extent all round the stem, for the consequence is, that all branches beyond the wound, are forced to become fruitful, and thus premature decay is brought on. Simple incised wounds, and even those in which the bark is raised from the stem to a considerable extent, may unite if the edges be accurately adapted to each other, and the whole covered with some plaster to exclude the air: Forsyth's preparation is perhaps one of the best. In *pruning*, numerous wounds are unavoidably inflicted; these, however, when smoothly and properly made, produce no mischief. Stems bruised or fractured more than half through, in many cases will recover; but when more than that it is generally better to remove them at once, especially in old plants. There are many plants which never recover even slight fractures, but gradually decay. On the other hand, many succulent stems will, by proper management recover, after being bruised and broken to a great extent. The most proper treatment for fractured or bruised stems, is to tie them up, bringing the edges of the wound neatly together so as to promote a union, and covering the whole with some plaster.

WOUNDS OF STEMS FROM INSECTS.—There is a minute insect, which frequently infests the stems of apple and pear-trees; it is probably the *Coccus arborum* described by Reaumur. It attacks all the stems indiscriminately, which, in consequence, becomes covered with numerous muscle-like bodies, varying in length from one-eighth to three-sixteenths of an inch. The trees suffer from these when numerous by their inducing disease in the bark, from the lodgement of water, which they cause, and also by hindering the functions of the bark. The most effectual remedies for this affection that we have tried, are boiling water, as recommended by Mr. Beattie in the memoirs of the Hort. Soc. of Edinburgh, for 1827, and the "Cream of Lime" applied with care to the stems; or they may be scraped off, and the stems afterwards well washed with lime-water. Many insects attack the woody parts of plants, and trees in consequence become hollow, sometimes, again, the larvæ of some insects curiously undermine the bark of various trees, living upon the liber and alburnum, and forming twisted paths running in all directions.—

ULCERATIONS OF STEMS or "Canker."—So various and opposite are the opinions advanced concerning the cause of this disease, that it is difficult, if not almost impossible, to discover the real one of eleven authors; the following table will show the various causes, and the number of supporters mentioned by each:—

Supporters.

- 8 Wounds of bark and wood.
- 8 Bad soil and subsoil, viz. wet,—stiff clayey—cold clayey
—cold wet—wet gravel—exhausted soils—mossy bottom.
- 4 Injudicious pruning.
- 3 Bruises.
- 2 Gangrene of young shoots.
- 2 Attacks of insects.
- 2 Cold wet seasons.
- 2 Improper aspects.
- 1 Load of fruit.
- 1 Frost injuring sap.
- 1 Friction.

Removal of the affected part by the knife, and covering the wound with plaster, as recommended by Forsyth, is the most usual method by which a cure is attempted, and this, in some cases, seems to answer tolerably well, while in others it entirely fails.—

GANGRENE OF STEMS.—The disease just described is frequently the cause of extensive gangrene, by which we mean, that the part loses entirely its vitality, and is in many cases; changed in its consistency, having its texture completely broken up in all cases the colour is changed, and generally to a reddish brown or black, but the texture is not always broke up. Gangrene seems to occur, for the most part, in consequence of wounds, parasitical plants, great heat in cold, excess or want of moisture, lightning, &c. Extremes of heat and cold, and sudden alternation of temperature, are frequent causes of gangrene in succulent stems and other parts of plants, as the leaves, flowers, &c.; and the hopes of the gardener are often blasted by their influence, especially in the spring. The cherry, plum, and other stone-fruit trees, are subject to a species of gangrene which is generally called the "*gum*." The affected branches must be removed as soon as possible, for the disease is very rapid in its progress.—Stems sometimes become bark-bound, and this is supposed to arise from the cuticle not giving way as it ought to do; trees in consequence become stunted in growth. It is sometimes cured by longitudinal incisions along the stems down to the alburnum.

NATURAL DECAY of PLANTS.—Like all other organized bodies, they are destined to exist but for a time; some for less than a day, others for more than a thousand years; but all are subject at last to decay, each having certain functions to perform, that the continuation of the species may be insured, natural decay never comes on till this process is completed; so that any means used to counteract natural decay, must be practised with a constant reference to that fact.—
R. SPITTAL, ESQ.—*Cal. Hort. Trans.*

HORTICULTURAL INTELLIGENCE.

NEW AND VERY RARE PLANTS, figured in the Botanical Periodicals for July.

CLASS I.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

LEGUMINOSÆ.

Hov'EA VILLO'SA. Shaggy Hovea. The nearest relationship of this species is the *H. purpurea*, from which it differs in being excessively, instead of being merely covered with a very short dense pubescence. Flowers purple; native of New Holland. Culture.—It requires an airy greenhouse, flowers in April, and is easily propagated by cuttings grown in sandy peat.—*Bot. Register.*

CHORIZE'MA TRIANGUL'ARE. Triangular Chorizema. Flowers scarlet, mixed with bright orange. Native of the south-west coast of New Holland, where the seeds were found by the collector, Mr. Baxter. Culture.—A delicate greenhouse plant, requiring a very airy dry shelf in the winter, and is increased freely by cuttings.—*Bot. Register.*—The soil suitable is sandy peat.

GALACINÆ.

FRANC'OA APPENDICUL'ATA. Naked stalked Francoa. A perennial of considerable beauty. Flowers bright rose coloured. This remarkable and hitherto little known plant is one of the many interesting additions made to our collections by Mr. Anderson, the assiduous Botanist who accompanied Capt. King, in his recent voyage of survey on the coasts of South America. The seeds were collected near the port of San Carlos de Chiloe, where the plant had been originally discovered by Don Luis Née, Naturalist to the Spanish expedition under the ill-fated Malaspinae.—*Brit. Flo. Gard.* Culture.—We suppose it will thrive in sandy peat earth planted in a moist situation out of doors.

PRIMULACEÆ.

PRIMULA SIBIRICA. Siberian Primrose; flowers purdlish rose-coloured. Native of the northern regions of Siberia, and of the Altaic mountains, whence specimens have been sent by Dr. Fischer. Culture.—Like many other plants of countries where the winters are more severe than ours, this plant requires the protection of a frame in winter, which serves the same purpose as the covering of snow, in its native regions: thus treated it flowers in April.—*Bot. Mag.*

EPACRIDEÆ.

EPACRIS NIVALIS. Snowy Epacris. A white flowering species. Native of New Holland; raised by Messrs. Loddiges from seeds, presented to them in 1829, by H. M. Dyer, Esq. Culture.—It requires the protection of the greenhouse, and should be potted in sandy peat earth; it may be increased by cuttings.—*Bot. Cab.*

TROPÆOLEÆ.

TROPÆELUM TRICOLORUM. Three-coloured Indian cress, a slender growing creeper. Flowers bright vermillion colour.—*Bot. Mag.* Culture.—It requires the shelter of the greenhouse, and thrives potted in any rich light loam. Cuttings root freely when planted under a common hand glass.

GROSSULARIÆ.

RIBES SPECIOSUM. (Fig. 109.) Fuchsia-flowered gooseberry. This is by far the most showy of this group of Ribes; having the entire habit of the gooseberry, yet vieing in the brilliancy and form of its flowers with the elegant Fuchsia, their colour being a bright crimson. It is one of the many interesting discoveries of Mr. Menzies, who collected specimens of it in California, during the voyage of Vancouver. Culture.—It is found to thrive well in the open ground, growing to a large bush, and continues in flower for more than six weeks.—*Brit. Fl. Gard.*



CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

HERMINIUM CORDATUM. Heart-leaved Herminium. Flowers small, and of a yellowish green colour. Native of the north-west of Africa, and the south-west of Europe. Link and Brotero have found it in Portugal. Spalzmänn collected specimens on shady hills near Tangier; and the Rev. Mr. Lowe found it on walls and rocks in Madeira. Culture.—This plant grows very well in the greenhouse, but requires a little more heat in November (its flowering season) and seems to flower the best when set in a cool part of the stove (*Bot. Reg.*) potted in a mixture of loam, peat, and sand.

MAXILLARIA VIRIDIS. Green Maxillaria. Flowers green and purple. Native of Rio Janeiro, whence it was sent by the late Sir Henry Chamberlain.—Culture.—It is rather a weak growing plant, requiring shade, much moisture to its leaves, and little to its roots, together with a high temperature and decayed vegetable mould. It seems to have no tendency to form those pseudo-bulbs which are generally so characteristic of the genus.—*Bot. Reg.*

ASPHODELEÆ.

ASPHODELUS LUTEUS VAR. SIBIRICUS.—Siberian yellow Asphodel. Flowers paler yellow than those of *A. luteus*. Introduced by Dr. Fischer. Culture.—It requires to be treated precisely in the same way as *A. luteus*.—*Ed. Bot. Reg.*

IRIDEÆ.

CROCUS RETICULATUS.—Netted Crocus. Flowers rich orange and velvet. Native of Caucasus. Introduced in 1830 by Mr. Steven. Culture.—It is exceedingly hardy, and the limbs increase themselves by offsets, and will grow in any good garden soil.—*Bot. Cat.*

ON FORCING CA'MELLIAS.—Take the plants as soon as they are out of flower, and shift them by taking some of the old mould off the ball and adding some rich compost, such as is used for pines, then place them in the stove. The sudden transition from cold to heat, causes them to throw out young wood directly, and as soon as flower buds appear, remove them back to the greenhouse till July, then set them out of doors, as much in the shade as possible; by this simple process, a succession of flowers may be kept up from November until the following May. Plants when once early excited, appear to look for it the same season again; people in possession of a quantity of pots, should not wait for many together, but shift them progressively as they go out of flower.—T. BLAKE.—*Hort. Trans.*

NATURAL HISTORY.

THE HABITS OF THE COMMON SNAKE, (CO'LUBER NA'TRIX,) AS EVINCED IN CAPTIVITY. I have been trying to domesticate a common Snake, and make it familiar with me and my children, but all to no purpose. It was a most beautiful creature, only two feet seven inches long. I did not know how long it had been

without food when I caught it; but I presented it with frogs, toads, worms, beetles, spiders, mice, and every other delicacy of the season. I also tried to charm it with music, and my children stroked and caressed it, but all in vain. I kept it in an old barrel out of doors, for the first three weeks; during that time it eat nothing, but after a very wet night, it seemed to suffer from cold. I then put it into a glass vessel, and set it on the parlour chimney-piece, covering the vessel with a piece of silk gauze. I caught two live mice, and put them in the vessel, it never attempted to eat them, but they sat shivering on its back, while it lay coiled up; I gave the mice some boiled potatoes which they eat, but the snake would eat neither the mice nor the potatoes. My children often took it out in their hands, to shew it to their schoolfellows; I one day took it in my hand, and opened its mouth with a penknife, to shew a gentleman how different it was from that of the adder, which I had dead by me, its teeth being no more formidable than those of an Eel or Trout, while the mouth of the adder had two fangs, like the claws of a cat, attached to the roof of the mouth, no way connected with its jaw-teeth; while thus examining it, an intolerable obnoxious smell was emitted, I also thought I felt a kind of prickling numbness in the hand I held it in, which continued for some weeks afterwards. It made its escape from me several times, by boring a hole through the gauze. I had lost it for several days at one time, but at length found it peeping out of a mouse-hole behind one of the cellar steps, whether it had caught any beetles or spiders I cannot say, but it looked very lively. I again confined it in a flour-barrel, from which it made its escape, and shortly afterwards met with its death.—J. HOWDEN.—*Mag. Nat. Hist.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

CULTURE OF THE HO'YA CA'RNOSA.—I should feel greatly obliged, if you or some of your subscribers, would favour me in some future number with the mode of treatment, and the native soil of the *Hòya Carnòsa*, as I have not been able to gather information from any books I have hitherto met with.

FLORILEGUS.

Essex, May 7th, 1832.

ON THE CULTURE OF RHUBARB.—Having read with pleasure Dr. Bevan's excellent method of cultivating Rhubarb, Hort. Reg. page 486—7, I beg to submit the following question to the Doctor.

Does Dr. Bevan think the flower stalk should be cut on its appearance, or be allowed to perfect the seed? Your opinion also, gentlemen, will greatly oblige.

T * * * *

R——d, May 7th, 1832.

PECULIAR FRUIT.—I met some years since with a fruit in the Mediterranean, which the foreigner who presented the same to me pronounced *Nazarol*; it was of the size and appearance of a well-grown crab-apple, having a stone in its centre, similar to that of a neectarine.—Pray what was it?

W. Z.

THE FIELD-MOUSE.—Pray what means can I use to destroy the short-tailed Field-Mouse? (*Mus arváles*) all the baits and traps I have set, are of no avail; the damage they do me is very serious.

G. N.

APPLE PECULIAR TO CORNWALL.—There is a very superior apple, (the name of which I have forgotten) peculiar to Cornwall, and the immediate neighbourhood of Truro in particular, it grows of a good size, is very juicy, diffuses when cut an agreeable fragrance, and is highly esteemed at the table. The late worthy Mr. Vivian had this apple in great perfection in his garden at Truro, and may be elassed, if not the first, decidedly among the very best apples of this country.

Pray can you inform me the name of this apple, and where trees bearing this particular kind, may be met with in the neighbourhood of London?

W. M. M.

G'ALIIUM APAR'INE.—As the expressed juice of the *Galium Aparine*,—Goose-grass or catchweed, taken to the amount of four ounces, night and morning for several weeks, is very efficacious in removing many of those cutaneous eruptions which are called, although improperly, scorbatic; I may probably be favoured through some of your correspondents, with the best and most simple method of extracting the juice from the stem and leaves in the greatest quantity, without lessening its virtue; for however succulent the plant may be for a short period of the year, it afterwards becomes very limited in this respect.

A SUBSCRIBER,—*ab initio*.

CONSERVATORIES.—In page 475, you promise an answer to M. D's letter of the 10th of January. I feel it due to the parties referred to in the middle paragraph, to rescue them from the insinuations there contained. If M. D. object ours, to avail himself usefully and practically of the information as to what he admits the cheapest mode of hot water heating he has met with: he would have applied himself to ascertain the more important point, viz.: The correctness of the statement and this investigation, would have furnished my answer to his suspicions. Query as to indirect advertisement, it is quite evident that this paragraph is mere cavil.

I can now state for your information, that trifling as the cost was of this hot water heating; the result both in Vineries and Conservatories, has been entirely satisfactory without interruption or accident.

P. T. O.

April 28th, 1832.

THE DOUBLE CAMELLIA.—Allow me to ask, cannot the Double Camellia be propagated by cuttings as well as the single, and if so, why it is not mentioned in your Article, page 362, or in Loudon's Encyclopedia of Gardening? Would you point out the difference in Mr. Harrison's Compost, given in pages 102 and 331? In making a list of plants, shall I put down the name of 'Authemis Artemisiaflora,' or 'Chrysanthemum Indicum.' When could the Starry Narcissus, mentioned in No. 9, of the *Horticultural Register*, page 411 be procured, and is it expensive?

H. L. T.

PRESERVATION OF DAHLIA ROOTS.—Having known several methods which were adopted for the preservation of the roots of Dahlia, during the winter fail, it would, I am sure, be acceptable to some of your readers, to be informed of the very best method for preserving the same, during the severity of winter.

ALFA.

A METHOD OF PRESERVING SEEDS.—A friend of mine, a few years ago, received a considerable number of Seeds from the East Indies, which were mixed with charcoal-dust in the papers in which they were folded up; they proved to have kept particularly well, as he was very successful in raising them. I am not aware, whether this method is much practised, but from the success in this instance, it seems deserving to be generally known.

I. T.

CHARACTERISTICS OF FRUITS.—From reading the notice in your work, of Mr. Lindley's New Book on Gardening. I was induced to purchase it, and from the nature of its contents, expected to find something satisfactory on the distinctive characters of different kinds of fruits, I admit, the work contains much that is valuable on this point, yet something is still evidently wanting to evince a philosophical accuracy. The distinctive marks of figs are, I think, very defective, which Mr. Lindley himself seems to be aware of, as he apologizes, that he had nothing better to offer. My motive is to enquire, if you, or any of your correspondents can point out any characters closely, to discriminate the following sorts of grapes, I take them from Loudon's Catalogue (given in page 751, Encyclop. Gardening.) I have referred in vain to published books for satisfactory information.—Perhaps my meaning will be more clear, if I state it in the form of questions thus: How are we to distinguish from each other, the small black cluster; the miller's burgundy; the large black cluster; the Pitmaston black cluster; the black sweet water; and the clarette? Of these, the miller's burgundy, is perhaps sufficiently distinguished by its hoary leaves, yet this is often confounded with the *Claret a Rosa*. Again, the diagnostics of the large black cluster is thought to be easily ascertained by the statement, that its leaves are *scarlet* in the autumn; but this also, it appears, is a characteristic of the Pitmaston scarlet.—Perhaps, you or your friends, will have the goodness to take the matter into consideration. It is one of great importance to the interests of gardening, and will, if not removed, render it impossible for the student to attain that accuracy, which is desirable in every scientific pursuit, and without which, indeed, no pursuit can be deemed a science.

P.

II.—COLLECTIONS AND RECOLLECTIONS.

BUDS DESTROYED BY BIRDS.—I observe in your Naturalist's Calendar, for January, under Zoology, you say, Birds at this Season are not in search of the Buds upon Trees, but the insects infecting them,—this I know is a generally received opinion, but I must say, I have great doubt of its correctness. I have numbers of the Tom-Tit constantly about my garden, and they uniformly take off all my plum crop, as well as the gooseberries, currants, and frequently cherries: I remarked, for several years I scarcely got a green gage from two trees at the lower part of my garden, but I usually had some in a favourable season on

a tree near the house, I also observed, that all the fruit-buds were regularly taken off the finer sorts of gooseberries, of which I was an extensive grower, when the smaller and common kinds escaped; now am I to conclude that the insects infested the plums, a distance from the house and not those near to it? or that they attacked the superior sorts of Lancashire gooseberries, and left the common ones untouched?

Or should I not be more correct in attributing my crop of plums near my house to the public situation of the trees, and the number of persons constantly moving about near them? and the losing the crop of large gooseberries when the smaller were secure, to the size of the bud, offering a greater temptation to the depredator to take it?

A few years since, I was surprised to see the snow under a May-Duke Cherry, covered with husks of buds, which I found were taken off by the common sparrow; had they not been prevented, they would have taken the whole, yet those preserved produced fruit: at another time, I saw a bullfinch alight on a cherry-tree, and before I could charge a gun, he had completely stripped every blossom bud from one long branch, yet all the others were full of fruit; can any one suppose, that the sparrows would not have stripped the first tree, had they not been discovered? or can it be imagined for one moment, that every blossom-bud, on a particular branch of the second should have an insect in, when all others were free and produced a good crop of fruit?

I should be much obliged to any correspondent, who could explain this apparent contradiction to the statement alluded to.

AN AMATEUR HORTICULTURIST.

January 10th, 1832.

By a reference to page 379, our Correspondent will find an observation on the subject, by Mr. Rennie.

ON RAISING TULIPS FROM SEED.—“The seed, when ripe, should be cut, and laid to dry in the capsules at first. As soon as they are perfectly dry, they should be sown as thick as you please, in pans or flat pots, in a light sandy soil; these must be placed in a frame, or some other situation where they will not become sodden with too much wet in winter, but, at the same time should be kept moderately moist. In the spring they will make their appearance; and, when two or three inches high, should be pricked off in a light sandy soil, either in pots or in a bed. When planted out so young, they will not miss their removal, but will continue to grow, and if kept regularly moist, with a little protection, will probably continue to grow till they become of a flowering size; or, if the leaves die away, the bulbs should not be dried, but should be set growing again as soon as possible; the bulbs to be transplanted when in a dormant state.

By this mode of treatment, we have flowered bulbs of the genus *Amaryllis* at one year old, and nearly all the sorts at two years old, sowing the seed as soon as ripe, and pricking them off singly in small pots, as soon as up; then placing them in a hot-bed frame, and, as the pots fill with roots, shifting them in larger ones, keeping them in continual growth till they flower.”

SWEETS FLORISTS' GUIDE.

March 14th, 1832.

ON PRESERVING TOBACCO.—“About the middle of August, the early tobacco will have attained its height and size; as it approaches maturity, the leaves acquire a whitish velvet down, the corrugate and yellowish shoots appear upon the elevated parts, and a certain indication of maturity is the appearance of livid spots upon the stem or midrib of the leaf.”

“The best mode is to take off so much of the bottom leaves as exhibit the marks above mentioned, these may be four or eight, and leave the rest on the plant to acquire strength and maturity. These leaves are suffered to lie on the ground for some time, and when they lose their brittleness, and can be safely handled, they are carried to any convenient office, and there put in a heap for fermentation; on this fermentation, depends in a great measure, the colour of the tobacco, if moderate it will be light, and if permitted to penetrate the leaves, it will produce a brown colour. The greatest heat the leaves ought to arrive at, is from one hundred to one hundred and ten degrees, Fahr. After it has remained for two or three days in the heap, it is to be cooled, and the leaves hung up in an airy shed or stove, after which, it is fit for use.”

T. K. S.

OBITUARY.

“He being dead, yet speaketh.”

WE have to announce with deep regret, the death of Mr. Wm. Mowbray, Curator of the Manchester Botanical and Horticultural Garden, which took place, after a painful and protracted illness of several months, on Tuesday the 10th of July, at Hitchen, in Hertfordshire, where he had retired for the benefit of his health. Mr. Mowbray's constitution has for some years had within it, the germs of consumption, and we fear his unwearied exertion, both mental and bodily, together with the great anxiety he felt in the formation of the Manchester Garden, has much contributed to assist the decay of his health. What is there completed, shews his superior abilities, and stands a monument to his fame, as a scientific and practical gardener. He was born at Hitchen, in Hertfordshire, where his father still carries on the business of gardener and seedsman; he was upwards of forty years of age, eleven of which he was gardener to the Earl of Mount-Norris, at Harley-Hall, Staffordshire, where from his general behaviour and modest habits, he was highly respected. On the breaking up of that garden-establishment, he was engaged to fill the situation he held at his death; he was warm and sincere in his attachments, humble and unassuming in his deportment, unwearied in the performance of his duty, a Christian in his actions, and in the words of a friend of ours, who communicated the painful intelligence of his death, “he has left behind him a character crowned with great respect.”

III.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

STIRLING HORTICULTURAL SOCIETY.

The Third meeting was held in the Saracen's Head, Inn, Stirling, on Tuesday 12th of June, when there was an excellent assortment of plants, fruit and vegetables, besides the usual prices an extra one was offered by the Treasurer, to the person, whether a member of this Society or not, who would produce at this meeting, the best model of a Moss-house of his own construction, and not exceeding two feet high. A spirited competition took place, when the judges after a most minute inspection, decided in favour of William Wilkie, apprentice gardener at Keir. It is hoped this subject of designing will not be lost sight of.

TAUNTON HORTICULTURAL SOCIETY.

The second meeting for this year, took place at the Assembly Rooms, Taunton, on Friday, June 15. The fruits, vegetables, and flowers were very excellent, and the attendance of respectable company very numerous.

LANCASTER FLORAL AND HORTICULTURAL SOCIETY.

The second show was much better than it was generally expected. The flowers though few in number were fine, the fruits were good also, particularly the grapes and strawberries. On the vegetable tables, lay a bunch of Rhubarb, consisting of eight stalks, which weighed 13lb. The circumference of one of the stalks was nine inches.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY.

The third meeting held at the Corn Exchange, Norwich, on Wednesday June 13th, was numerously attended. The shew of Cactus's, Ranunculuses, and other flowers, was extremely beautiful, the exhibition of fruit was very limited, but there was a good supply of vegetables. After the shew between fifty and sixty members sat down together to an excellent dinner. In the course of the evening the Secretary stated that the Society was most flourishing and daily increasing in numbers, there being now between six and seven hundred members.

DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY.

The tenth exhibition took place in the city of Exeter on Thursday, June 7. The room presented one dense mass of the rank and fashion of the neighbourhood. The room also presented a display of Floricultural productions as gorgeous as to set rivalry at defiance. There were also some excellent fruits and vegetables. A succession of company continued to crowd the room to the time of its closing, and the receipts exceeded by many pounds that of any previous exhibition.

OXFORD HORTICULTURAL SOCIETY.

The first exhibition for the present year was held on Thursday, April 26th, and the second on May 28th; both of which were very good, and appeared to create much interest: much respectable company was in attendance, and the whole seemed to augur, that this will be a very flourishing Society.

IV.—MONTHLY HORTICULTURAL CALENDAR,

FOR AUGUST.

This month; with a few exceptions, is much more dry than the preceding, with at the same time but little diminution of heat. During the past month we have experienced much cold weather, but we have not observed that vegetation has sustained any material injury, except that insects have rather gained ground; this year they are exceedingly numerous, which may

probably be accounted for by the fine open weather of last winter not destroying either the eggs or larvæ. Although many fruit trees have been partially stripped of their foliage by the larvæ of moths, there are, upon the whole, as far as we have seen, good crops remaining. This is an important month to gardeners in sowing and planting several autumnal and winter crops, as well as those for next spring and summer, none of which will allow of any delay.

FRUIT DEPARTMENT.

Peach and Nectarine Trees, should be again looked over, and all superfluous wood taken off, the fruit will also require its final thinning as soon as the stoning is over. See p. 95, 481, and 529.

Figs out of doors will now begin to ripen, for the general treatment, see p. 71, 95, 386.

Currants and Gooseberries should be matted in dry weather to preserve them to a late time in the year.

Strawberry beds in late situations now in bearing, may be occasionally watered if the weather proves dry. This is also a good time to make new beds, p. 95, and 329. Those in pots intended for forcing should be constantly stripped of their runners, page 395.

Budding may yet be performed if the bark rises well.

Vines in Pots, p. 6, 185, 490, 536. On the rafters, in frames, or out of doors p. 73, 193, 309, 337, and 339.

Melons and Cucumbers raised from cuttings should be carefully looked after, and they will bear abundantly from the beginning of September.

Pine Stoves for the regulation of their heat p. 374.

FLOWER DEPARTMENT.

Carnations will now be in full flower. All layers that have struck root should be potted. See page 199 to 202.

Erica Cuttings may still be put in, see p. 96, and 445.

Mignonette should now be sown in pots to stand the winter in frames, See p. 96.

Dahlias cuttings may still be put in. P. 145, and 494.

French and English Roses, may be budded still. P. 186, 245, and 249.

Pink pippings may be yet put in with success, if sufficient are not propagated.

Violets may still be propagated by parting the roots.

Bud Lemon and Orange Stocks, if the bark will rise full.

Ranunculuses and Anemonies out of flower should be taken up. P. 166; those planted last month will, if taken care of, flower by the middle of September.

Rose Acacia.—The shoots may still be shortened early in the month, and they will push anew and produce abundance of flowers in autumn.

Propagate *Pelargoniums* by cuttings. P. 102, and 517.

Azaleas may yet be propagated by cuttings of the young wood.

VEGETABLE DEPARTMENT.

Celery planted out in July will require earthing; also plant out more for spring use, pages 96, 289, 290, and 433.

Turnips sown in the first week come in October, also sow twice more in the month to succeed them.

Sow Radishes three times in the month.

Sow Lettuce the first and third weeks, to come in from October; also plant out from the seedling beds such plants as are of sufficient size.

Carrots sown by the middle of the month will be fit for table in the spring.

Plant out *Endive* for a full crop, and sow more seeds to come into use early in the spring.

Stratsburg Onions now sown will come into use from November. About the middle of the month sow a crop of Welsh for winter use.

Winter Spinach should be sown not later than the middle of the month.

Cabbage seed sown the first week will come in, for coleworts in winter and spring. About the middle sow Battersea. &c. for planting out in the spring. Also finish planting Savoy, Brocoli &c.

Cauliflowers now planted out will be in use from October; about the middle or latter end of the month, sow more seed to stand the winter in frames.

Shallots and Garlic should be taken up in dry weather as soon as the tops decay.

Herbs fit for cutting must be gathered in fine weather.

THE
HORTICULTURAL REGISTER.

SEPTEMBER 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—ON TRAINING PEACHES AND NECTARINES.

BY HENRY DYSON.

Sub-Gardener at Womersley Park, near Pontefract.

FOR several months past I have fostered the intention of laying before your readers a paper on the subject of training peach and nectarine trees, which intention has, in a great measure been rendered nugatory by the ample and able disquisitions on the same subject, which have already appeared in the preceding numbers of the *Horticultural Register*, from the respective pens of Messrs. Harrison and Mearns. The elaborate remarks of these gentlemen I have perused with pleasure and instruction. I should not have presumed to add any observations of my own, had I not been impressed with the positive conviction that Mr. Harrison was labouring under a misconception of the nature, utility and beauty of Mr. Seymour's system of training ; such being the precise state of the case according to my comprehension, it is my intention to give a brief, and simple statement of the routine treatment of such trees, as practised at this place.

Figure 109 is the representation of a tree established on Mr. Seymour's system, having made its first year's wood; the main branches being trained slightly converging upwards (as a) to form the rudiments of the future tree, the centre stem being cut down to five eyes.

Figure 110 represents the same tree after it has made the second years' wood, and is trained in for the next season.

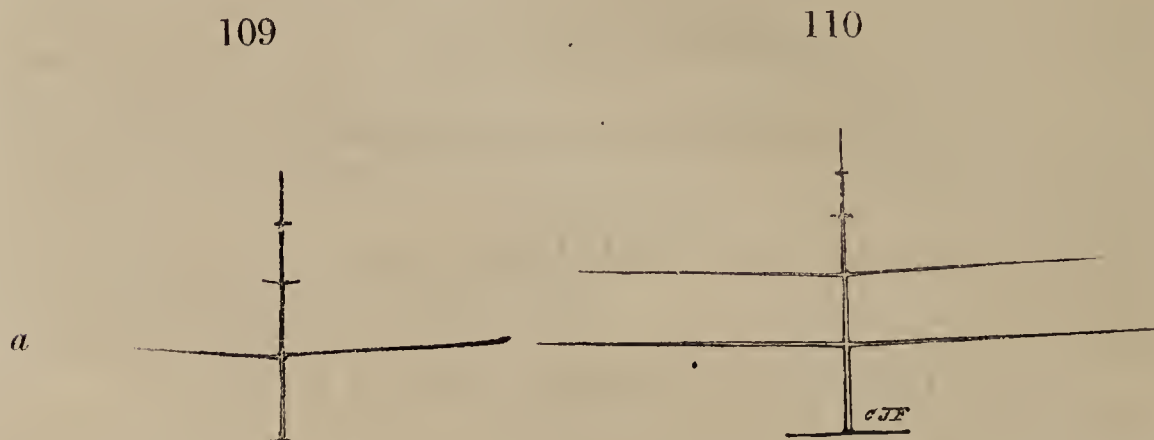
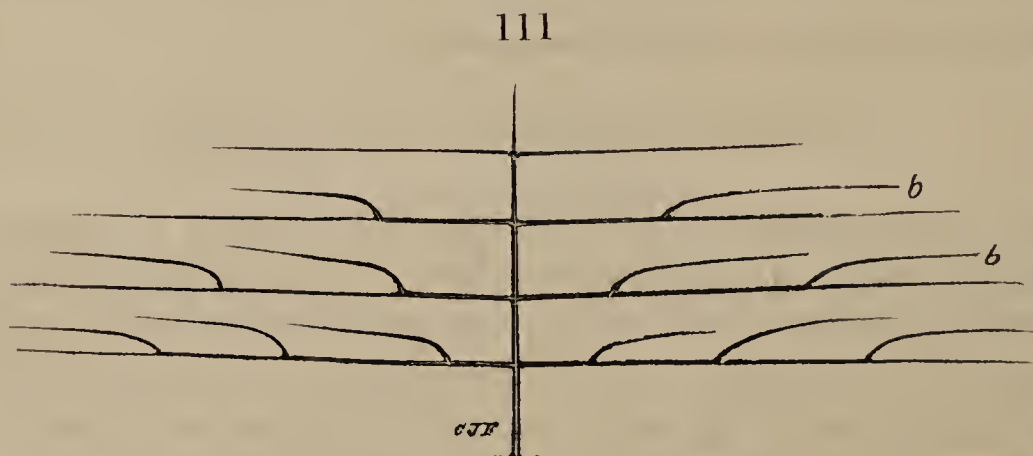


Figure 111 exhibits its appearance after the third season, with the lateral shoots trained in, over the main branches, as bearing wood for the forthcoming season, (b. b.) the main branches are always trained at full length, and, when the tree approaches to maturity, covers an expanse of wall to the extent of seventy-five feet, or upwards.



In the *Horticultural Register* for June 1832, page 532, Mr. Harrison states his objections to Mr. Seymour's system to be first, "that the origin of each successive shoot, from the same source, is each year farther from its mother branch, and not only does this become naked, but the primary part of the shoot forms a rugged protuberance similar to the spur of a pear tree, and each successive year it becomes lengthened, as the origin of a suitable new shoot from last year's wood is produced more distant from the mother branch."

Now to this objection urged by Mr. Harrison against Mr. Seymour's system, I must beg leave to tender my unqualified dissent, for the origin of each successive shoot, after the first season of training in the lateral shoots, is most certainly not farther removed from the parent stem, which position is also admitted by Mr. Harrison in the very next sentence to that I have quoted.* But he states in addition, "that such shoot is uniformly much weaker, than one arising from last year's wood." That it is weaker, I most willingly admit, but in young trees (which I presume Mr. Harrison's friends must have been) the failure of fruit most commonly results, from an over-luxuriance in the young wood, and this is an axiom which will be generally, if not universally allowed by practical gardeners, and such truism being admitted, it clearly establishes the fact that weakness (in this case at least) is strength, inasmuch as the production of fruit is the desideratum. With regard to "the rugged protuberance similar to the spur of a pear tree," I beg to declare most unequivocally, that under Mr. Seymour's system, with proper management and attention, no such unsightly appearances can exist or occur,† and if the statement of a youth be not sufficiently conclusive, I invite all unbelievers to a personal inspection, when I will engage to convince them, be they ever so obstinate, by actual demonstration.

Mr. Harrison next observes "that when a shoot [b. b.] (that is a lateral shoot) dies from casualities, a substitute cannot readily be obtained, and that he has seen three or four such shoots perish successively on the same branch, and thus there was a yard or two of branch without a single lateral shoot upon it, and that instances of this kind are not solitary."

My experience has revealed to me nothing of the kind complained of, and although I have witnessed the system of Mr. Seymour in practical operation, on an extensive scale in several gardens, I have never yet met with one solitary instance of dead wood occurring in any material degree. I do, therefore, conclude that Mr. Harrison's friend first *attempted* the adoption of a system, subsequently gave it up, and afterwards unjustly condemned it as worthless, never having comprehended its merits, its efficacy, or its beauty.

* When the shoots has its rise from one of the previous years' growth, it must of necessity (as we before stated in page 532,) be produced more distant from the origin of the lateral branch, than its parent. If the shoot is produced from the protuberance and not upon a last year's shoot, we before remarked, it would not be liable to the objection.—J. H.

† Mr. Seymour's Trees have them.—J. H.

In the autumn, or in the winter season, we proceed to cut away all wood which has produced fruit, together with all that was intended to produce fruit, and train down the young lateral shoot to take its place for production the next forthcoming season, cut to the length of from twelve to twenty inches, according to the distance of the next lateral shoot on the main branch.

Early in the year we make a strong solution of soft soap, to which we add from two to three pounds of flour of sulphur, and propel it upon the trees with the force of the garden engine, the tenacious quality of the soap causing the sulphur to adhere to the branches, and to the wall in sufficient quantity to destroy any insects that may then be lodged there, together with their ovaria, which dressing is repeated when the trees are in bloom.

When the fruit is set the trees are well engined or syringed, both in obverse and transverse directions, with a strong decoction of tobacco. When the trees become well covered with leaves we syringe them thoroughly with pure water, and while wet dust them with sulphur by means of a puffer; an instrument well adapted for the purpose, expelling the fine particles of sulphur through a minute wire sieve at one end about an inch in diameter, similar to the common bellows propelling the atmospheric air, and which completely destroys the red spider, and prevents the mildew, if the trees, as is commonly the case, are infested therewith.

It must be observed, that it is absolutely necessary to protect the trees during the entire blooming season, throughout every night by woollen netting or by canvass, and also every day when the weather is frosty, cold and wet, or otherwise unpropitious to the tender bloom. We have strong hoops driven into the upper part of our walls at proper distances, to each of which is attached a pole by a strong staple, the other end being fastened in the soil, and over which is secured the netting or canvass, and, when once fixed, the walls are protected from inclement weather, or readily exposed to the influence of the sun.

In the summer management we take care to select that young shoot which is nearest to the mother branch, and which generally proceeds from about the base of what Mr. Harrison calls the "unsightly spur," and such being the case the identical spur complained of, (or the embryo thereof, which would eventually form a spur if permitted so to do) is cut away at the latter end of the year, together with the lateral that has produced fruit; having selected the young shoot it is necessary, before midsummer, to tie it down in its proper place, being rather above and parallel with, the fruit-bearing branch of the present season; which is subsequently secured by a nail and shred, as a tem-

porary precaution against the effect of boisterous winds. During the summer months at repeated intervals, we proceed to remove every superfluous branch, or shoot which may have pushed from underneath, or in front of the main branches of the tree; either by pinching off or disbudding, as circumstances may appear to require. On these occasions every super-abundant and deformed fruit, or any that are sickly in appearance are severally removed.

By adopting this system, and carefully attending to the simple rules enumerated, notwithstanding the variable climate of the north of England, I will venture to prognosticate that any gardener may safely calculate on the certain assurance of a plentiful crop of peaches and nectarines, and those also of a superior size and quality, to any that can be produced on the old fan system.

To behold these trees in spring, when the leaves are in embryo, not a nail or shred visible, every branch occupying its appointed place with mathematical precision, and every lateral shoot adorned with its beautiful crimson blossoms; the effect is magical! and if less enchanting, it is not a less glorious sight to behold them in September, when every part of a tree from its centre to its extremities is universally studded with delicious fruit, alike desirable to the palate and the visionary organs.

In conclusion, I beg to aver, that Mr. Seymour's system is so simple, so perfect, so abundantly fructiferous, and so bewitching to the eye at all seasons; that it only need be seen and understood, to be universally adopted throughout Great Britain.

HENRY DYSON.

Womersley Park, July 1st, 1832.

ARTICLE II.

THE ADVANTAGES TO BE DERIVED FROM THE FORMATION OF A GARDENERS' SOCIETY.—BY R. F.

THERE will be few who do not approve of your recommendation, for forming an Arboricultural Society, in England, or of your suggestion for training young men as foresters, by giving them practical lectures upon the management of trees. But not to enter upon this subject, the object of this letter is, to press upon your notice, the propriety of recommending the formation of an institution, where young gardeners might be examined, and diplomas be given them,

in a manner similar to what you have recommended to be done, in the case of those young men who might study the principles of Arboriculture. Although a mismanaged garden is an evil easier rectified than woods, which have been neglected, or ill taken care of, yet when we compare the sciences together, and see how much more attention and watchfulness are required in the one than in the other, surely the adoption of a system which would be so advantageous to foresting, by placing the axe or the pruning hook in the hands of those who were capable of using them aright, must likewise be beneficial to gardening, as it would remove carelessness and inattention, prove a stimulus to application, and foster those abilities which at present are often allowed to remain unnoticed and neglected. Some institution of this nature is daily becoming more imperative, not only for the advantage of those, who, by persevering study, have made some proficiency in knowledge, but also for elucidating the art of Horticulture, and enabling it to maintain an equality at least, with those arts and sciences which we see making such rapid strides towards perfection.

Far from depreciating the extent of the general knowledge, which gardeners have been allowed to possess in times that are past, it will require but little observation and acquaintance with mankind to perceive, that *now*, instead of being superior in their mental acquirements, it is to be feared, they are falling behind the generality of tradesmen and mechanics. Formerly, the working-classes of society were contented, if by attending to the instruction given them, they obtained a knowledge of their profession, by following in the same routine tract in which thousands had travelled before them; but now a spirit of enquiry having been produced, knowledge is taking the place of ignorance, and men, exerting those powers of the understanding which formerly had remained unexercised, have seen the propriety of examining for themselves, distrusting what appeared to have no other authority than custom, antiquity, or the sanction of some great name, and founding their opinions upon the broad basis of science, and the principles of inductive philosophy. What has been the result? The knowledge of those sciences, which had engaged the attention of the philosopher, and which their less learned brethren considered to be attended with so many difficulties as to be entirely beyond their reach; have now become the study of the labouring mechanic, who, combining the understanding of the first principles upon which the operations of his art are founded, with daily practice in it, has been enabled to shed a light over many things formerly dark and obscure, and even been the author of researches which had

escaped the penetration of the more learned but less practical investigator. Thus from men being led to study first principles, a new era has been produced in the annals of the arts and sciences, and to the same source, we must trace the present advanced, but (in comparison with many other arts) still very imperfect state of gardening. This imperfect state must be apparent to every one, who reflects upon the diversity of opinions which prevail on almost every subject connected with it, and the reason of this requires but little discrimination to perceive. In many of the other arts, we see the workmen adding their own ingenuity, and acquaintance with the principles of their profession, to the researches of the philosopher; but in gardening we observe the generality of young men, contenting themselves with the ability of using the various tools which are put into their hands, and acquiring a few practical rules from the pages of Abercrombie; whilst the study of those first principles upon which the success or failure of all their operations depend, are left for the consideration of the philosophic Amateur. Not only is there a carelessness and inattention upon this subject, amongst the great body of gardeners, but in many cases prejudice and opposition. I recollect when living at a place in Scotland, where six young men lodged together, one of the number who had heard some lectures on chemistry and other sciences, commenced making some experiments, for the purpose of improving himself, and giving us a taste for scientific pursuits; but instead of hailing this as a favourable opportunity for advancement in knowledge, we considered that such pursuits, were not necessary to the practical gardener, that it was impossible for a young man to make that attainment in them, which could enable him to understand the principles of his profession, and some turned the idea altogether into ridicule, and considered such pursuits to be more productive of evil than good. From the number of young men with whom I have been acquainted, I can safely say, that this is far from being a solitary case; for however, the knowledge of gardeners has lately been so much spoken about, the truth of the matter is, that they who are paying attention to scientific pursuits, and the first principles of their profession, form exception from the general body, and consequently cannot be brought forward as instances upon which to found a general inference.

Now since one of the principal objects you profess to have in view, is to advance the art of gardening by imparting knowledge to the practicers of it, it becomes of great importance that errors and misconceptions be removed, that men be convinced that their mental faculties are unlimited, and not merely able to comprehend this thing,

or that thing; that to possess knowledge of whatever nature, nothing more is necessary than the desire to do so, united with industry and application, and then point to some object for the attainment of which their efforts ought to be directed. It is this which has improved the mechanic. From having an opportunity of attending lectures upon the several sciences, and obtaining the privileges of an extending library, a new impulse has been given to his actions, he sees the pleasures and the advantages of knowledge; and when he beholds one of his companions, with no better opportunity for his improvement than himself, receiving a prize for some useful invention, or an essay or some subject connected with natural or experimental philosophy, he feels his mind glowing with the desire of reaching the same attainments, and resolves that he perseveringly will continue his exertions, until at least he equal if not excel, the individual whom he now considers so much his superior. Let similar inducements to mental improvement be held up to gardeners. Form societies where their abilities may be tried, and diplomas awarded to them according to their merit; give out prize-essays, the rewards for which however small, their intrinsic worth, may possess a value on account of the honour which they confer, and a spirit of emulation being aroused, we may expect the beneficial effects to follow. Then, instead of wasting their spare hours, if not in unbecoming, at least in trifling pursuits, we shall see young gardeners directing their attention to studies, which will give them a scientific knowledge of their profession, and make them more useful members of society, and then the art of gardening being reduced to its first principles, and divested of much of its obscurity, we shall be enabled to suit our operations to the circumstances under which we are placed, and not so often witness the failure of plans which had been recommended by, (and even answered well with) others where soil, situation, and climate were different. Much has been done to encourage the growth of good vegetables and fruits, by Horticultural societies, but nothing has been attempted by them to encourage mental cultivation amongst young gardeners, upon whose abilities the future state of our art depends. I am far from being so vain as to suppose that any suggestion of mine will lead to the adoption of such a system, but, convinced of its importance, I lay it before your attention, hoping it will receive the notice of some of your correspondents, who will be better qualified to do the subject justice.

R. F.

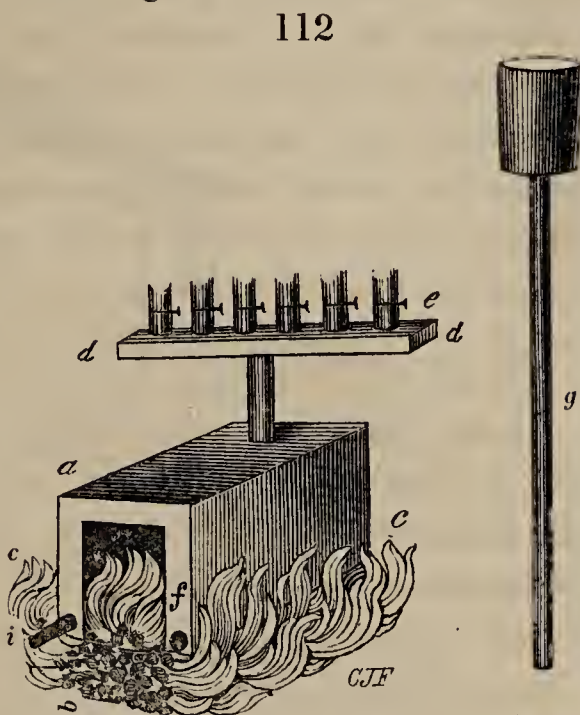
Staffordshire, June 13th, 1832.

ARTICLE III.

PLAN AND EXPENSE OF ERECTING A HOT-WATER APPARATUS
FOR HEATING A VINERY.—BY J. WALDRON.

THE apparatus I am about to lay before your readers is so simple that when the pipes are obtained, any person may without difficulty fix them. The boiler (a) is three feet long, two feet six inches wide, and two feet six inches deep down the sides. The fire is made in the middle (b) and leaves but six inches depth of water over it; the water coming down each side of the body of fire, and the flames also spreading around the outside (c c) soon causes the water to boil; the fire-place one foot six inches wide, and three feet long; and from the great body of fire it will contain, the boiler is capable of answering the purposes

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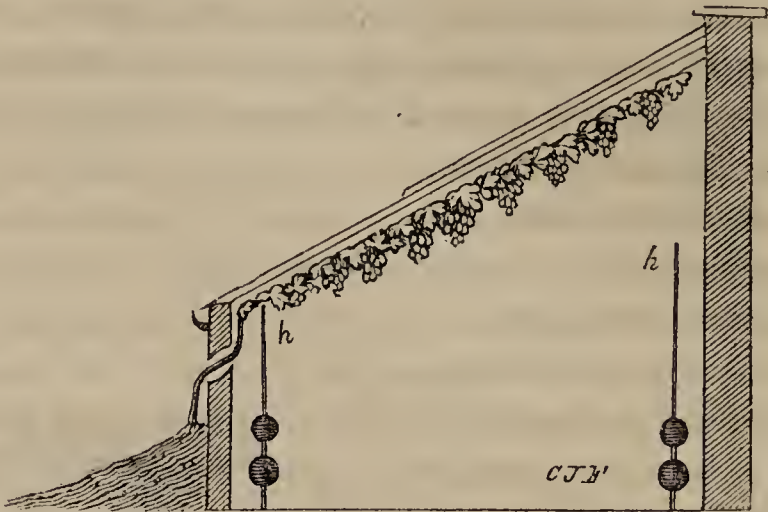


of several houses ; and the fire when once got into full action consumes comparatively little fuel. On the top of the boiler is fixed a box (d) from which issues as many pipes as there are houses to be heated, allowing one pipe to each house. Each of these pipes has a stop-cock at its base (e) to turn the water, and heat on or take it off any house required. A similar box is fixed at (f) for the return pipes, and on the top of it is fixed a feeding pipe (g) to allow the air to escape from the circulating pipes, and also to supply the boiler with water ; the size of the feeding pipe must be regulated by the quantity of water the boiler and pipes hold ; every twenty gallons, when hot, becomes twenty-one by expansion, for every twenty gallons therefore, the boiler and pipes hold, one gallon must be allowed for the feeder : for instance if the boiler and pipes held 160 gallons, the feeding pipe must hold eight to allow for expansion. There are two small pipes (fig. 113, h h) of half an inch bore placed upon the top pipes at the turning, to carry off the air, that the water may circulate freely. These are carried up from four to six feet high, and if placed against the wall, will not be much seen ; if the pipes have to pass a door-way, they may be sunk under the walk and raised again after the manner

of a flue, but previous to sinking them a small pipe similar to (h h) must be fixed to carry off the air or they will not work well off from the boiler and pipes when required.

The boiler is a close one and should be well made, and put together with fire cement, nuts and bolts; it will cost about twenty shillings per cwt.

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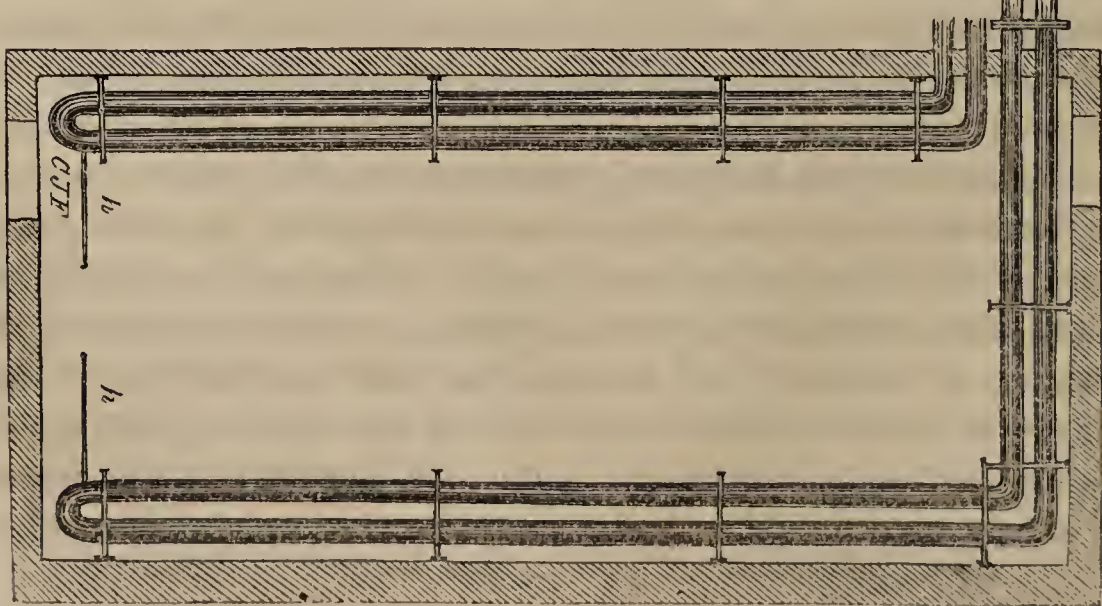
If the boiler is only intended to heat one house, the boxes will not be wanted, as a pipe will be fixed on the top of the boiler, and the return one at (f) : exclusive of the boxes and cocks, the expense of heating a house thirty feet long will amount to :

	£,	s.	d.
For Boiler 5 cwt. at 20s. per cwt.....	5	0	0
Piping and Elbows.....	11	4	0
Nuts and Bolts 30lb. at 5d.....	0	12	6
Canvass, red and white lead, &c.....	0	12	6
	£17	9	0

If more houses than one to be heated the			
additional expenses of the boxes.....	3	0	0
Stop-cocks for each.....	0	7	6
	£20	16	6

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£20 16 6



The pipes may be had of Messrs, John Davies, & Sons, or at the Birmingham coal company's foundries, Tipton, Staffordshire. All the difficulty lays in sending a correct statement of the length of the elbows, and the proper quantity of six feet and nine feet pipe wanted. You may then put them together yourselves, allowing a fall of half an inch in every nine feet of pipe, each pipe to be four inches in diameter inside, and to be fastened at each joint by four nuts and bolts. A nine feet pipe of four inches bore, thickness of metal $\frac{3}{8}$, weight 1 cwt. 1 qr. 10lb. at 10s. per cwt. Elbows 12s. per cwt. Boiler as stated before; nuts and bolts, 4 to the pound, at 5d. Red and white lead, canvass, labour, &c. to each joint 7d. The plan of the boiler will answer for any number of houses, if it and the fire place be made wider and longer, according to the power required. If I have not intruded too far, I shall most likely trouble you again with the expenses of building pits and houses. JAMES WALDRON.

* We shall be glad to receive the promised favours of our correspondents.

ARTICLE IV.

CULTIVATION OF ANNUALS, BY CUTTINGS,

BY THE AUTHOR OF THE DOMESTIC GARDENER'S MANUAL.—C. M. H. S.

IN the fourth article of your ninth number, that for March, page 397; I gave a description of an experiment upon the propagation of the balsam, (*Impatiens balsamina*) by cuttings, &c. in the autumn. I have subsequently found that by a similar mode of operation, the plant can be multiplied to an almost unlimited extent in the spring. From various, though not accurately noted trials, I am satisfied, that many of the best annuals which are universally raised from seeds only, can successfully be cultivated by cuttings. A double advantage must result from this mode of cultivation; for, first the trouble and risk attendant on the progress of the young seedlings during the dark and humid autumnal and winter months, will be obviated; and secondly, the periods of flowering will be altered and greatly extended. One recent instance, I can point out with sufficient accuracy. Referring to my diary, I find, under the date September 21st, 1831, that four cuttings of *Coreopsis Tinctoria* were taken off from an old plant, at the axillæ of the leaves (i. e. the points where the leaf-stalks emerge from the stems;) and placed in pots, in

a soil composed of light loam and leaf-mould : each cutting might be about three inches long. The pots were plunged in the earth of a melonry, and covered with a small bell-glass.

I could not pay the plants that attention which they really required, in consequence of an alteration that was made in the pit ; and by which many of its vegetable tenants were greatly injured. I however succeeded well with one of the cuttings, and this was finally placed in a small pine stove, during the winter. Here, the temperature was never very high, because my object was not to force any plant to grow during the dark months ; and therefore, as the climate very frequently did not exceed from forty-five to fifty degrees during many of the winter nights, I am confident that a good dry greenhouse, or even a sitting-room, would have afforded sufficient protection.

The plant was kept in the stove till it attained the height of about three feet : it had one simple and erect stem, and was in strong and vigorous health. In May, it disclosed the first flower-bud at the summit, and then the plant which had been kept in a pot of the forty-eight size, was removed to a thirty-two. I at that period took it from the stove, and placed it in the dwelling-house, in a window with a south-east aspect ; and in a few days afterwards removed it from the pot, and planted in a flower-border.

By so doing I acted prematurely, for not only was the plant exposed to frosty nights, but it suffered severe assaults from violent winds, by one of which the summit was broken off ; and I thus lost my first blossom-buds. The plant however did not suffer materially, for it threw out six or seven fine lateral shoots, and *now* stands four feet high, with a branchy head, covered with its beautiful orange-coloured blossoms. The larger flowers are of the diameter of a crown-piece, the smaller are as large as half-a-crown ; and twenty or thirty of such flowers on a plant so erect and well balanced as mine is, form a beautiful, and at this period of the summer, a rather peculiar object.

I wish to call the reader's attention to one fact of importance, it is this, the *Coreopsis* may not only be propagated in the autumn by cuttings, but it will endure almost any variety of temperature, after being once fairly established, and in a healthy growing condition. My house was frequently heated by the sun to eighty-five, ninety, and one hundred degrees, (the thermometer suspended in the shade) during the months of March and April ; and after the plant was removed into the open border, the external temperature was in several instances below thirty-five degrees.

The fact that various annuals, the balsam, *coreopsis*, and others,

may be raised from cuttings, is doubtless known *now* to many ; but the constitutional hardihood by which some can support great and sudden transitions, may not be so generally known.

Though I may not have added much to the stock of scientific information, by this communication, I hope I shall be fortunate as to induce many persons to prosecute experiments upon subjects which may afford much pleasure and rational enjoyment ; and perhaps, lead to discoveries of great and permanent utility.

G. I. T.

July 2nd, 1832.

ARTICLE V.

THE METHOD OF FORMING THE TREE MIGNONETTE.

BY THOMAS JOHN KNOWLYS, ESQ.

Heysham, Lancashire.

As Floriculture is so much patronized by the ladies, I send a little communication, which I hope may be of some use to your fair readers in particular ; the method is not new, but as it is generally considered, that the tree mignonette is a different species from the common, I beg to say it is not, as there is not one distinguishing mark between them ; all that is necessary in forming the tree mignonette is, that there should be about a third of sand mixed with the soil in the pots.

In the month of March, sow a few seeds of the *Réseda odorata* or common mignonette, in pots of five inches width by seven deep, filled with rich sandy loam ; place them in a melon or cucumber frame where there is a good moist heat ; when they have made about four leaves, pull out all but one strong plant in each pot, as it grows, pick off all the side shoots, leaving the leaf at the bottom of each shoot to carry nourishment to the stem. When the plant is drawn up by plenty of heat and moisture to the height of about eleven inches, it will shew its blossom, which must be nipped off : leave it about a week longer in the melon frame, taking care to nip off all side shoots, then remove it into the green-house, where it should have less water, but plenty of air ; let it be carefully tied to a thin stick with bass. After a short time it will begin to send out another shoot from near the top, which must be led up the stick, and all side shoots again nipped off, but the bottom leaves again left to strength-

en the stem; by this means it will be about eighteen inches high, the bloom must be again cut off, and the plant kept in the greenhouse; in the autumn it will put forth plenty of shoots from the top, and make a handsome bush, and will come into flower early in February or March, according to the heat in which it may have been kept.

By this means I am enabled to gather mignonette for bouquets all the spring, and the same plants by being cut, send forth fresh shoots which flower all the summer. I hope I have not been tiresome in my directions, as my object is to be so clear, that I may be thoroughly understood by any gardener's labourer.

T. J. KNOWLYS.

Heysham, June 1832.

ARTICLE VI.

TREATMENT OF THE VERBENA MELINDRES, &c.

BY WM. THORN.

I HAVE lately received a packet of seeds brought by a friend from China, part of which, I now beg your acceptance of; but I regret that I cannot give you the names, as they are all written in the China characters. (They arrived quite safe, and return many thanks to our correspondent.)

In reply to G. L. page 571, I had a very fine plant of the Verbena Melindres growing in the open border last summer, which was covered with a hand-glass through the winter; it is now very healthy and in full bloom: the hand-glass was occasionally taken off for a few hours in the middle of the day in mild weather, and it had no water but the rain which soaked to it from the outside of the glass. I was not so successful in my treatment of the Maurandia Barclayana; about the end of November last, I cut down a very luxuriant plant, transplanted it from the border to a large pot, and kept it in doors with other green-house plants through the winter; it produced a few weak shoots in the spring, is now in a very sickly state, and I think will not survive long. Had it remained in the border, and been covered with a glass, it might now have been a healthy plant.

WM. THORN.

Gilstone House, near South Molton, Devon, }
June 11th, 1832. }

ARTICLE VII.

TREATMENT OF THE RHODODE'NDRON ARBO'REUM.

BY A. Z.

THIS very magnificent species, according to Sir I. E. Smith, in *Exotic Botany*, 6, "was first noticed by Captain Hardwicke, on a tour to Sireenagur, in 1796, growing in the mountainous tract, called the *Sewallic chain*, which separates the plains of Hindostan, between 75 and 85 deg. east longitude, from the Himmaleh mountains. It is generally found in elevated situations, in forests of oak: the soil a rich black vegetable earth, on a stoney bed. The natives use the wood for making the stock of matchlocks, or common musquets of Hindostan. The stem is columnar, twenty feet or more in height, sixteen to twenty-four inches in diameter. From its natural situation, it is irrigated by the melting of the snow above, which continues to take place most part of the season of flowering and making its shoots, it will therefore be readily seen, that there exists a necessity for it to have an abundant supply of water, during its growing and flowering season: it is not sufficiently hardy to endure our winters generally, although some plants have stood out, planted in an American shrubbery, throughout the whole year when the weather was not very severe, and did not seem to be affected by it; they certainly are, when in flower, very splendid ornaments, in our conservatories. They grow freely in sandy peat, and strike root readily by layers of the young wood, they are sometimes grafted upon the *R. ponticum*, but never make such handsome tree-like plants as when propagated by layers or seeds. They seldom flower until they are several years of age, and are then rather capricious not flowering every year in succession, although receiving precisely the same treatment. Individuals, who have not the convenience of a conservatory or greenhouse, may keep them very well in a cold pit or frame through our most severe winters. They will come beautifully into flower in the beginning of April, and the flowers secrete such a quantity of honey, that when they are shaken it falls from them like large drops of rain. Mr. Knight thinks a spike may yield upwards of a dessert-spoonful at a time, and after being exhausted, a fresh supply is secreted. It is, however, considered unwholesome, as is all collected from the other species of *Rhododendron*, and *Azalea*, although most part of the *Ericæ* produce honey free from any deliterious qualities.

A. Z.

ARTICLE VIII.

REMARKS ON THE CAMELLIA.—BY G. A. L.

(Continued from page 636.)

24. CAMELLIA JAPONICA SPLENDENS, splendid Camellia, commonly called Halnuts Splendens. A very pretty seedling from the gardens of Mr. Halnut, of Clapham. The habit of this plant is exceeding neat, the flower is of a fine red colour, rather small, but in general very double and regular. One or two other varieties have been also called Splendens, but the plant of Mr. Halnut claims that cognomen by the rights of priority, although it may be surpassed in beauty by its rivals.

25. C. JAP. ROSEA, rosy or Le Blanc's C. I am perfectly ignorant of the history of this beautiful variety, but having had the gratification of seeing it in bloom this season, at Messrs. Chandler's nursery, I do not hesitate to predict, that it will become a general and universal favourite, if, in future, it retains these peculiar characters, which then marked it as a most distinct and elegant variety. The flower is small, very double and very regularly imbricated; it is of a colour rather deeper, I think, than that of the monthly rose, and has a greater tinge of pink. I am not aware that this plant has yet been figured in any of the publications. It is as yet very scarce; the only plant Mr. Chandler had was a very small one, which he had received from the Horticultural Society.

26. C. JAP. CRASSINERVIS, thick leaved or Mr. Kent's C. A variety much resembling the C. jap. anemone-flora or waratah, but its flowers do not fall so soon, and continue in full beauty much longer than those of that variety. *The crassinervis* well deserves notice. It is sometimes (but improperly) called *heraugulous*.

27. C. JAP. WOODIN, Woods C. A pretty but variable seedling variety, raised four or five years since by the Messrs. Chandler, and named by them in honour of Mr. Wood, of Camberwell-Grove. When the plant blooms well, the flower very much resembles a provence rose.

28. C. JAP. ELEGANS, elegant C. Another seedling raised about the same time with the woodsu, and by the same persons. This is a handsome plant, the flowers are large, well made, and of a different red to those of the woodsu, nor do they appear to sport so much.

29. C. JAP. PAUNTATA, dotted flowered, or Gray's Invincible C. sometimes called Press's Invincible, having been raised by Mr. Press, gardener to E. Gray, Esq. This variety and the two following ones, (marked 30 and 31, raised also by Mr. Press,) are certainly three splendid plants; their chief fault consists in the great similarity they bear to each other; but notwithstanding this defect, they are sufficiently *distinct* in character to form three *distinct* varieties. The general character of their flowers, is a white ground, beautifully spotted or else touched with delicate hair lines of pale red, the shade of which is somewhat different in each variety. The plants were raised from seeds of semi-double red, the flowers of which had been impregnated with *farina* from the single white. Here I must be allowed to digress a little, for the purpose of warning those who may be commencing the cultivation of this admired genus, against a disappointment they will often meet with, I mean the disappointment so often experienced, arising from the extreme tendency of the seedling varieties to what is called by gardeners, *sporting*. The flowers, when expanded, are frequently of a ragged and irregular shape, besides being but semi-double; nor is this all, the colour is at times not so true as it should be, more particularly the colours of those plants, which are termed the variegated or striped varieties. Frequently after purchasing a fine new variety, I have had the mortification of seeing it open a poor and (comparitively speaking) worthless flower; besides being exposed to the laughter of those to whom I had extolled the beauty and splendour of my new purchase. However a second flower, or at most, the next season, has amply rewarded me for my expense, trouble, and vexation; but to return from this rather long digression.

30. C. JAP. ROSA MUNDA, vel venusta, Gray's venus C. (See C. jap. punctata.)

31. C. JAP. SPLENDIDA, Gray's Eclipse C. (see C. jap. punctata.)

32. C. JAP. PAPAVERACEA, poppy-flowered C. A fine seedling from the Vauxhall Nursery. This, although a single variety, I must recommend to the notice of every cultivator. The flowers are large, numerous, and of a dark red colour, well relieved by the very prominent Stamina, rendered still more conspicuous by their large and bright yellow anthers. The plant is still scarce, although it has a very rapid sale, so much so, that the Messrs. Chandler had but one plant left a few months since.

33. C. JAP. COLVILLII, Colville's Carnation C. A very first-rate flower, raised four or five years since, at the nursery of the late Mr. Colville, of the King's Road, Chelsea. The flower is very large,

well made, and remarkably double; the ground-colour is white, beautifully spotted and striped with pink, altogether very much resembles a fine picotée carnation. It must be classed with Gray's Invincible, venus, and eclipse, which it also much resembles; but the pink, if I recollect rightly, is darker and in greater abundance than in those varieties. It is very scarce, and indeed must remain so for a long time yet, few persons being able to pay the price demanded for the smallest plants. It was figured in Sweet's "British Flower Garden," for June, 1829.

34. C. JAP. PARKSII, Park's striped C. I am personally unacquainted with this variety; but am informed, that its chief attraction arises from the accident of the flowers being sweet scented.

35. C. JAP. RUBRICAULIS, Ly. Ab. Campbell C. A pretty but variable variety.

36. C. JAP. SABINIANA. Sabine's white C. A plant named in honour of Mr. Sabine, late Honorary Secretary to the Horticultural Society's Report speaks highly of this variety, but I am myself unacquainted with it.

37. C. JAP. EXCE'LSA, lofty or noble C. A pretty white seedling raised at the Tooting Nursery, a few years ago. What quality it may possess, which entitles it to be called *excelsa*, I cannot conjecture.

38. C. JAP. ALBA SIMPLEX, single white C. A plant of slow growth, and but of little beauty. However many fine seedlings have been procured by impregnation from this variety, and therefore must not be despised by those who wish to raise new varieties.

(To be continued.)

ARTICLE X.

CULTURE OF THE NATURAL ORDER AMARYLLIDÆ.

BY ARTHUR.

PERHAPS no family of plants exhibit more brilliancy of colours, combined with delightful fragrance than do the flowers of those belonging to this order. The lillies of the field have excited admiration from the earliest ages of botanical study, and the accounts which have been transmitted to this country by Botanists and other travellers, leave no doubts as to these being the flowers intended. They are all bulbous rooted, and differ but little in the figure and general appearance of the leaves. The order contains thirty genera, many of

which are found deeply rooted in the burning shores of Islands in the torrid zone, where scarcely a blade of grass will grow. These will only thrive in the stove under peculiar treatment, which will be afterwards explained. Many are found in the damp and sultry woods of South America, where they are completely overshadowed by trees and never see the light of the sun; these also require shade, and a place in the stove. Some grow intermingled with *Ixias* and *Gladious* in southern Africa; these for the most part require no greater heat than the greenhouse or vinery. Others again are to be met with in the cooler provinces of Europe and Asia, many of which are perfectly hardy, and the others require only the shelter of a frame through the winter. Below is an appended list of the genera.

1 Hæmànthus	11 Phycélla	21 Pancratium
2 Galànthus	12 Vallòta	22 Ismène
3 Leucòjum	13 Griffinia	23 Eucròsia
4 Strumària	14 Sternbèrgia	24 Eùrycles
5 Crìnum	15 Zephyránthes	25 Calostémma
6 Cyrtànthus	16 Habránthus	26 Chlidánthus
7 Gastronèma	17 Doryánthes	27 Chrysiphiála
8 Brunsvígia	18 Gethy'llis	28 A'cis
9 Neri'ne	19 Alstrøme'ria	29 Cobúrghia
10 Amary'llis	20 Narcíssus	30 Clivea

Genus 1st.—Hæmánthus (*Haima* blood, *anthos* a flower) blood-flower. These all require the temperature of the greenhouse, and the most part will thrive in any rich mould; there are a few, however, which seem to prefer a considerable portion of peat and sand, mixing with the mould, as *H. maculátus*, *hyalocàrpus*, *rotundifòlius*, *pumílio*, and *càrneus*. *H. crássipes*, and *orbiculàris*, will flower better if potted in quite strong loam; let them stand on the front curb, or any situation near the glass, and be cautious not to give them water when in a dormant state. They are very easy of culture and may be propagated by offsets.

2. Galanthus (*Gala* milk, *anthos* a flower) snow-drop. The treatment of this genus is too well known to require any explanation.

3. Leucójum (*Leukos* white, *ion* a violet) snow-flake. These much resemble the last in habit; the *L. autumnàle*, the handsomest species, increases rather slowly, and is apt to perish, particularly if the land be heavy. They all do the best in sandy-loam, on the open border.

4. Strumària (*Strumá*, a tubercle,) all natives of the Cape of Good Hope, and consequently greenhouse plants, they grow freely

in sandy loam, mixed with about equal parts of leaf mould, or peat soil, and require the same treatment as *Hæmānthus*.

5. *Crinum*, (*Kirnon*, Greek for lily.) There has existed considerable difference of opinion as to the distinctive characters of the two genera *Crinum* and *Amaryllis*; Mr. Gowen says, "there is no difference between the true *Crinums* and those placed under *Amaryllis*, than a slight variation in the form of the corolla, and in the inclination of the filaments. The form of the bulb constitutes no essential distinction, as it varies greatly in the acknowledged members of the genus, being spherical, or conical, or cylindrical, or of mixed form; these forms graduate into each other, and in some species the trace of a bulb is hardly to be made out, the leaves, diverging at once from the root stock. In *C. erubescens* which never loses its leaves, the bulb is scarcely to be traced. In *C. asiaticum*, the poison-bulb, and its allies, it is decidedly columnar, and the foliage persistent (not falling off;) these inhabit the deep alluvia of rivers; and exposed to inundation during the periodical rains; and are always sufficiently supplied with moisture, to be kept in a state of growth. *Crinum scabrum*, and all its kindred *Amarylloid Crinums*, have true bulbs, and in our collections cannot be preserved in health without a season of absolute rest; their foliage is deciduous, in many, sloughing off completely from the bulb. They inhabit dry ground in their native regions, and are exposed to long periodical returns of great drought, and to the utter loss of their foliage." From these observations, we gather that all those species, the roots of which are perfect bulbs, and foliage entirely deciduous, must have no water during the time they are dormant, and be watered at all times with care; the soil, although rich, should be light by a mixture of leaf-mould, peat, and sand, and the pots well drained with potsherds, and be placed in a situation near the glass, yet in a very hot part of the stove: by this treatment, and keeping them dry when dormant, they will flower very freely, particularly if potted every year in fresh mould previously to their beginning to grow again. All those species where the bulbs grow, with a long thick neck, somewhat resembling a leek, as *C. amabile*, the finest species of the genus, and *C. bracteatum* which although amongst the smallest, is elegant and very fragrant, *C. pedunculatum*, *C. riparia*, &c. require a great quantity of water during their flowering season, and a moderate portion throughout the year, they grow freely in rich mould, with a little sand mixed to keep it from binding: these should be planted in large pots, and plunged in the bark-bed, or placed upon the flue, and if well drained they can scarcely be overwatered, particularly the *C.*

riparia and *C. longifolium*, the former of which was found by Mr Burchell in 1816, in a tract of country in Southern Africa, till then untraversed by any European, "it grew in large bunches on the banks of the Nugareip or Black river, in similar situations to those occupied by the common yellow flag, (*Iris Pseud-Acorus*;) where it is frequently under water whenever the river rises a little above its ordinary level;" and the *C. longifolium* in North America, is cultivated as an aquatic, being planted in ponds and reservoirs the same as water-lilies; these are all increased by suckers from the root, or by a kind of bulbiferous seed which they occasionally ripen, particularly the Botany Bay lily (*C. pedunculatum*) when they are shy in throwing up suckers; cutting down near to the root will cause them to produce abundance, indeed, if the root gets wounded by any means, it in general produces the same effect, and Mr. Sweet in his "Botanical Cultivator" partly recommends the practice, they are all of very easy culture.

6. *Cyrtanthus*, (*Kyrtos*, curved, *anthos*, a flower) the different species of this genus, require only the heat of the green-house, and only that during the colder months of the year; those who have any other convenience, may grow them to perfection in a frame, by potting the bulbs very shallow in light sandy loam, mixed with equal parts of peat earth, or leaf-mould, and watering very sparingly when not in a growing state; they however must be allowed plenty during their time of flowering, and if fresh potted just before they begin to grow, they will in general flower very freely, and occasionally ripen seeds, by which, and offsets, they are readily propagated.

7. *Gastronèma*, (*Gaster*, a belly, *nema*, a filament;) requires precisely the same treatment and soil as the *Cyrtanthus*.

8. *Brunsvigia*, (named by Heister in 1753, in compliment to Charles, Duke of Brunswick, Lunenburg.) The whole of this beautiful genus flowers most of the summer, and the bulbs grow to a considerable size, and do not thrive if cramped in small pots, indeed they blow very well if planted in the open borders in spring, providing the soil of the border is light and the situation warm, but they must be taken up again before the frosts commence, or they will perish, they derive advantage by having a small portion of sharp white sand, put in the hole round and underneath the bulb when planted. If planted in pots, the best soil is light turfy loam mixed with equal parts of peat and sand, chopped and well mixed together, but not sifted; plant the bulbs very shallow and place them in a warm part of the green-house, giving a good supply of water when in flower; after the flowers are dead and the leaves begin to grow, remove the

pots into a hot-house, and let them remain there, giving a moderate supply of water until the bulbs are perfected, then remove them to a cool part of the green-house, and keep them perfectly dry; in this genus is the famous poison-bulb, from which is extracted the deadly poison, used by the natives of Southern Africa, to cover the heads of their arrows; Mr. Burchell says,* “the plant is of frequent occurrence in the more acid districts of Southern Africa, growing both in sandy plains and rocky spots, on the banks of the Bushmen’s river, at Rautenbacks Drift. It is also found on the great sandy plains of Litaakun. I have been assured by the bushmen themselves, that the juice of the bulb is one of the ingredients, most commonly used in the poisonous composition, with which the heads of their arrows are covered. The wild antelopes seem carefully to avoid bruising the leaves of this plant, as I have observed it always left untouched, although the surrounding herbage has been grazed over.” It appears from what has been otherwise collected, that the poison used is a mixture of several substances, “the principal ingredient is always the poison taken from snakes, which being fluid and volatile is incorporated with the juice of a large kind of spurge, (*Euphórbia*) by which it acquires a waxy consistence, to this is added the juice of the bulb of *Brunsvigia toxicarius*, an alkali, supposed to add most powerfully to the activity of the poison.”

9. *Nerine*, (*Nerine* the daughter of *Nereus*.) These are all green-house plants, and require similar treatment to the *Cyrtanthus*, *Hæmanthus*, and other Cape bulbs; the culture of the Guernsey lily (*N. sarniensis*) however differs in some points from these, I shall therefore take the liberty of detailing it. These bulbs are supposed to be originally natives of Japan, but have now become quite naturalized to the climate and soil of the Islands of Guernsey and Jersey, where they grow and flower in the open ground with great freedom, and from whence they are annually imported every summer; under the general treatment of other bulbs, they seldom flower after the first year of introduction, or flower so weak as scarcely to be worth harbouring: the chief art therefore in cultivating them is to grow them to perfection for many successive years, instead of having to buy a quantity every year. They are generally received in July or August from Guernsey, with the flower stems more or less advanced, they should then be immediately planted in upright thirty-two-sized pots filled with mould, composed of equal parts of rich maiden soil, peat, and leaf-mould, set them in a frame, or in the front part of the green-house, where they can have plenty of light

* Bot. Register, v. 7. fol. 567.

and air, which will greatly improve their colour; give them a moderate supply of water whenever the soil becomes dry, and they will continue in flower all through October. After the flowers have decayed, the green leaves will begin to shoot, and as on the perfection of the growth of these, the future flowering of every bulb depends, it will be necessary to render them every possible assistance, and not as is generally the case, thrust them under the stage of the greenhouse, stove, or any other place where they will be out of sight. The best method I know is to make a hotbed, and after having set on a frame, lay over the dung about a foot thick of the same compost they were potted in, then turn out each pot of bulbs with the ball perfect, for if these are broken, their growth will be much retarded, shelter them, from the severity of winter, and give them water and air as they require it, until the bulbs are ripe, then keep the soil perfectly dry. By this treatment, many will bloom the second year with great vigour; as soon as the flower stems begin to shew, take them up with a trowel so as not to injure the small fibres that are starting, and pot them, being careful to remove none but those shewing flower. If they were allowed to stand on the bed two years, and could be kept warm through the second winter, they would bloom finer than those that are imported.

10. *Amaryllis*, (A Nymph of Virgils.) Of late years, this genus has been greatly increased by a number of hybrids, many of which far surpass the originals, both in the production of their flowers, and the rich variety of their colours, they for the most part, require the temperature of the stove, although some as the *A. pumilio*, *pudica*, *blánda*, &c. will do very well in the greenhouse, and two or three species as the *A. belladonna*, &c. will do in a frame, or even out of doors in warm situations; they are in general easy of culture, and are readily increased by offsets, and many ripen plenty of seed. A shell peeled off the bulb with a leaf attached, will grow very freely if some pollen be shaken on the stigma at the proper period: the strong growing species must be plentifully supplied with water during their time of flowering and growing, they thrive best if planted in large pots. Mr. Sweet found it an advantage to turn them out of the pots, when the bulbs were ripe, and after shaking all the soil from them, laying them upon a shelf in a dry situation, until they began to shew flowers, he then had them potted in light turfy loam, rather more than one-third of white sand, and the rest turfy peat, well chopped together, but not sifted for it takes away all the best part of the soil. All the pots should be well drained with potsherds, this, however, Mr. S. found would not do as a general rule for "*A.*

reticulata, and striatífólia, or the mules raised from them, will flower much better by remaining in the pots all the year, as does also *A. aùlica*, *calyptràta*, *solandræflora*," these should all be kept dry during their dormant state, or they will not flower, whilst "*A. reginæ crocàta*, *rutìla*, *acuminàta*, *fùlgida*, *Johnsòni*, *psittacinà*, and the mules between those, are much better turned out."

ARTHUR.

(To be Continued in our next.

ARBORICULTURE.

ARTICLE XI.—NOTICES OF FOREST TIMBER.

BY AN ARBORIST.

Continued from Page 645.

THE Mahor or wild cotton tree grows in Cuba to a vast size : there is one on an estate called Santa Anna 100 feet high. Its trunk which is forty-four and a half feet in circumference at the base, rises to 65 feet without a branch or a single knot on its white bark. The branches are worthy of the stem and cover a diameter of 165 feet. This immense tree is in itself a world, and shelters and feeds millions of insects ; several parasitical plants attach themselves to it : wild pine apples grow at the top, and the vine vegetates on its boughs, and letting its branches droop to the earth, furnishes a ladder for rats, mice, and opossums, which would find it difficult to climb up a smooth bark, and enable them to reach the pine cups, which form so many natural reservoirs for the rain water. The wood-louse founds extensive republics in this tree, and establishes its large and black cities at the juncture of some of the branches, from whence it descends to the ground by a covered way, of which it provides two, one to ascend and the other to descend. This little insect is of the size of a flea, is inoffensive, and a great treat to the inhabitants of the poultry-yard when given to them in the nest altogether.

No plant is better adapted for underwood than the Yew ; it will thrive under the *drip* of other trees equally with the Holly ; they are often increased by cuttings and sometimes by layers. Cuttings of the young wood strike freely : when rooted, they should be transplanted into nursery-beds, or lines to attain sufficient size, age, and strength, for final planting out.

AN ARBORIST.

To be Continued.

ARTICLE XII.

THE DESTRUCTIVE EFFECTS OF IVY,

(HE'DERA H'ELIX)

AS AN IMPEDER OF THE GROWTH OF FOREST TIMBER.

BY ALBINUS.

THE pleasure I experience in perusing the very interesting communications I met with in the last number of the *Horticultural Register*, respecting the management and improvement of forest trees, would have been much increased, had notice been taken of the effects of Ivy (*Hedera helix*) which encircles and binds in particular the oak : first by impeding its luxuriance and growth, and ultimately, when it has acquired sufficient strength, destroying the tree, which, had it not been for this vegetable boa-constrictor, would have reared its head amidst the forest for ages, in all its natural strength and beauty. I am the more particular on this head, having lately had an opportunity of traversing several woods in the county of Kent, of some extent, and observing with much regret the effects of this formidable creeper, strongly indicative of the great indifference of those entrusted with the care of such property, in having permitted an enemy of the kind to make so great a progress with impunity.

ALBINUS.

3rd July, 1832.

ARTICLE XIII.

ON EXTRACTING FROM OTHER WORKS, NOTICES OF FOREST TREE PRUNING, &c. AND PLANTING THE CYPRESS FOR GARDEN HEDGES.

BY A. B.

I OBSERVE with pleasure that you are attending to the cultivation and pruning of timber. The opinions of different writers on this subject are scattered through so many books, that I think you would do well to abstract them as they appear, giving the substance in short, I say short, because you have one or two communications in late numbers which might have been much condensed. Experiments are

wanting on the effects of the various modes of pruning forest trees, and it is a subject which would become the Horticultural Society to take up; their garden might be made a great experiment ground on this very important point without at all diminishing its beauty, instead of its being merely a pretty walking garden, with good gravel and turf. If you look back into some of the old writings on gardening, you will find many curious observations on the management of garden hedges, Espaliers, and what they called Topiary works. For instance, in the "Dictionarium Rusticum, Urbanicum et Botanicum 1726," you will find an account of the method of making garden hedges of the cypress of the levant, of training the spruce fir and the holly for the same purpose, of causing roses to blossom late in the year, and many other matters which were better understood when gardening was of a more formal cut than they now are, not that I recommend the return to Topiary work, but every body at some time or other may wish to shelter his garden, or shut out an obnoxious object. With respect to the cypress there is reason to believe that its timber, though of slow growth, is of great value, and as a garden hedge plant it appears to me quite unrivalled both in beauty and hardness.

A. B.

ARTICLE XIV.

ON PRUNING FOREST TREES.

BY MR. HOWDEN.

ALTHOUGH I have seen much of, and written on Forest tree pruning, I think not half enough has yet been said on the subject. Your correspondent quotes the writing of a third person, who says "it is a mistaken idea, that by pruning you accelerate the growth of the tree, for more than twenty years I have witnessed its bad effects, the tree that is left to nature, invariably increases faster than one subjected to lopping and pruning. I do protest "says he" against pruning for the purpose of improving the growth of timber: if you deprive the tree of its leaves or *mouhths*, the roots are unable to obtain that which enables them to perform their functions.' Now I on the other hand, after forty years' experience, do *protest* against the above doctrine; if good timber is to be had, the tree should be *pruned every year*, or every two years at farthest, and this may be done with the knife, bill, or chisel, at one-tenth of the expense of the

saw or axe at the *sawpit*; I thought by this time every gardener and forester in the kingdom, had known how to renovate a poor stunted tree, or an old thorn hedge; my way is to cut them off close to the ground, depriving them of all their millions of *mouths*; mouths did I say? I not only cut off the *mouths*, but the head, neck, shoulders, and body, yet the roots no-wise daunted by the loss of such *vital parts*, throw up fresh trunks, heads, and *mouths* too.

Mr. Blakie, of Holkham, says very wisely, that “the young wood, &c. never unites with the saw or hook-marks of the amputated limb;” pray, did any gardener ever expect it would? *Wood* cut off will never unite with *wood*, or even *bark* with *bark*; but the sap and alburnum will unite and form fresh wood, and bark over the wound, which if small as in a graft of one year, will never be perceived when the tree is full grown, so neither will the wound occasioned by cutting off a branch one inch in diameter, from a tree of four inches, be any blemish when the trunk has swelled to the diameter of four feet. Mr. Blakie thinks, that knots grow out and shell off; he is mistaken, branches or knots proceed direct from the centre, and continue to increase till they die, the lower branches die first, being smallest, and growing under the droppings and shade of the upper ones: hence the butt end of the tree is more valuable than the upper end; such self-pruned butt ends are the fine grained barks we get from America, &c.: but the Americans inform us, that scarcely one tree in a hundred in their *natural* forests is fit for exportation, they sell only the very best timber, and use the inferior for local purposes, like the poor Irish farmers, and I may add the poor English ones too, who sell all their best goods, and live themselves on the unsaleable refuse! But to return, though young wood will not unite with rotten wood, neither with a live toad, nor yet with a great brag-nail, yet I have found fine clear planks laid round all three; but a few years ago, I found a large nail in nearly the heart of an oak tree, the tree itself was little the worse, but the saw was much damaged. But to conclude, I maintain, that if a tree be well pruned whilst young, you will find neither toads, nails, or rotten wood in it.

JOHN HOWDEN.

March 11th, 1832.

NATURAL HISTORY.

ARTICLE XV.

ON BIRDS LUBRICATING THEIR PLUMAGE.

BY A SUBSCRIBER.

MOST of your readers have heard that aquatic birds lubricate themselves with an oil, procured from a gland, situate near the rump, for the purpose of keeping their plumage impervious to the water. I am induced to take up this subject by the perusal of an able and ingenious article from the pen of Mr. Waterton, published in the magazine of Natural History, for June last. Mr. W. in the above-mentioned article flatly denies that birds do anything of the sort and ascribes, as the reason of their constantly rubbing their bills up and down their feathers, that they are only cleaning themselves from the insects, &c. which infest them. It certainly is rather bold to attempt at one stroke to upset what Linnæus, Buffon, Montagu, Rennie, and a host of naturalists have advanced, and which has hitherto been considered a settled point, but I think Mr. W's reasons are so conclusive that I am induced to coincide in this opinion. Mr. Waterton's principal objections to birds lubricating themselves are

That the bird could not extract the oil from the gland, without much pain, on account of the hardness of the bill, and the softness of the gland. That the oil, even if extracted, would spoil the plumage. Mr. W. has tried this.

That the head and neck could not be anointed, and that these parts would require it as much as the others.

To the first of these objections I am not inclined to give much weight, inasmuch as different birds have different shaped bills, and until you know whether the unctuous fluid is discharged voluntarily or not, how can we judge whether any pain is caused to the bird or not. I much doubt whether the application of the hard bill of the bird to the soft gland *would* cause any pain.

Mr. Waterton has had ocular demonstration of the second objection. [See his remarks.]

The third objection, namely, that the birds, admitting they do lubricate at all, cannot apply the oil to the head and neck, is more important, for no one can for a moment suppose that the very small quantity of oil which could be obtained by rubbing the neck, on the

back, and under the wings, which is asserted by the supporters of the lubrication theory, would be sufficient for the purpose for which it is required.

Another, and perhaps the best objection is that the bird would not be able to obtain sufficient oil from the gland to lubricate itself all over. The quantity required for this purpose will be very great, as birds (if they use it at all) use it continually.

I think Mr. W. has sufficiently refuted the idea of their using oil at all, that they (as he asserts) are catching insects when they are seen rubbing their bills up and down their plumage, appears rather doubtful. Perhaps some of your correspondents may be able to advance something in refutation or illustration of this theory; the subject will bear and well deserves attention and discussion, and I shall be happy to resume it in a future number.

A SUBSCRIBER.

Manchester, July 11th, 1832.

ARTICLE XVI.

SINGULAR INSTANCE OF THE INSTINCT OF WILD DUCKS.

BY MR. PHILLIPS.

Author of the Pomarium Britannicum, Sylvia Florifera, &c. &c.

BEING engaged in improving the grounds at Hedgerley Park, Buckinghamshire, during the last winter, I was desirous that the labourers should be kept employed in frosty weather, and therefore took the opportunity of collecting a quantity of large roots and stumps of trees, which had been grubbed up at various times in the woods and hedge-rows; these were dragged over the ice to an island in the centre of the lake, for the purpose of forming picturesque towers, and ruins. During this process, I was much amused by the movements of a great number of wild ducks on the opposite side of the lake; when about fifteen or twenty of these aquatic birds were constantly swimming, diving, and violently agitating the water, so as to prevent its becoming congealed by the frost, this they effectually prevented, although the ice on the other parts of the lake was sufficiently strong to bear, not only the weight of the large stumps of trees, but also that of ten or twelve men, whose labours were necessary to drag them to the island. When these ducks became weary, and retired from the water, they were regularly relieved by about the same num-

ber of others, which had been nestling amongst the rushes on the bank, and these again after a certain time, relinquished their labours to another party, so that the water was kept in a constant state of agitation both night and day, until the frost was over. I observed, that whenever the fresh party of ducks entered the water, their first object was to swim close to the ice in a semi-circle form, so as to entirely prevent it congealing any where within their boundaries; but what struck me as the most extraordinary circumstance was, that when the well known whistle of the keeper proclaimed the feeding-time, it had no effect on the ducks then on duty, although all the others flew as usual to the spot with their accustomed clamour, a part however soon returned to the lake with a loud call for those then in the water to change situations, which was performed with an alacrity and regularity, that would have been a lesson to well disciplined troops. The ducks appeared nearly regardless of the labourers, although at other times a single footstep would have alarmed the whole flock, and put them to flight.

HENRY PHILLIPS.

21, *Russel-Square, Brighton, July, 1832.*

ARTICLE XVII.

ON THE ADVANTAGES RESULTING FROM A JUDICIOUS STUDY OF NATURAL HISTORY.

BY J. SMITHMOT.

OF the different studies which mankind pursue, few, if any, present a wider field for mental exertion than the study of natural history. Placed by an all-wise and bountiful Creator on this globe of earth, we are every where surrounded by the immensity of his works. It is much to be lamented that, notwithstanding every faculty which the present enlightened age affords for the attainment of scientific and useful knowledge, there should be, comparatively speaking, so few who manifest any desire of obtaining an intimate acquaintance with the sublime productions of nature. No one, is able to avoid being led occasionally by his own feelings, to notice the ever-varying and magnificent appearances which everywhere present themselves. All can remark the beautiful verdure of the fields, and woods, the elegance of the flowers, and the melodious singing of the birds; but how few indeed give themselves the trouble of proceeding a single step further, or exhibit any desire of examining into the nature of

these astonishing combinations of divine power. There are many who would, no doubt, most willingly devote a portion of their time to mental improvement, and to the study of nature, but their business leaves them so few opportunities, and so many obstacles present themselves, that they are compelled to relinquish the task as hopeless. With others it is not so much a want of time as a want of inclination that prevents them from attending to the improvement of their minds. There are few, I presume, who cannot spare one hour each evening, which might be applied to the pursuance of some branch of useful learning. And many, it is to be feared, who might spare more than a hour, squander their time away in carelessness and indolence, if not in a more culpable manner. Such persons pass through the world in a state of voluntary ignorance, without scarcely a single recurrence to the admirable works of their Creator ; and, in too many instances, even without ever having considered the end for which they themselves were brought into existence. It is one material use of the study of nature to lead the mind to a contemplation of its great author. In his works we observe a greatness far beyond our capacities to understand. Every step we take in our observations on nature affords us indubitable proofs of his superintendence. Every object in the creation is stamped with the characters of the infinite perfection, and overflowing benevolence of its universal parent. If we examine with the most accurate discrimination the construction of bodies, and remark even their most minute parts, we see clearly a necessary dependence that each has upon the other ; and if we attend to the vast concurrence of causes that join in producing the several operations of nature, we shall be induced to believe further, that the whole world is one connected train of causes and effects, in which all the parts, either nearly or remotely, have a necessary dependence on each other. Each part lends a certain support to the other, and takes in return its share of aid from them. But all the common operations of nature, surprising as they may appear, have become so familiar to us, that in a great measure, they cease to attract our attention. We all know, for example, that whenever inclination prompts to it, we can by a very slight exertion of our vital faculties, raise our hand to our head. Nothing seems more simple, or more easy than this action ; yet when we attempt to form an idea of the way in which that incorporeal existence, which we call *mind* can operate upon matter and thus put it in motion, we are indeed perfectly lost in the incomprehensible immensity that surrounds us. When we try to investigate the properties of matter, we perceive, that by patience and attention we may make a

progress in attainments to which according to our limited ideas bounds can scarcely be assigned.' When the anatomist considers how many muscles must be put in motion, before any animal exertion can be effected: when he views them one by one, and tries to ascertain the precise degree to which each individual muscle must be constricted, or relaxed, before the particular motion which is indicated can be effected, he finds himself bewildered in the labyrinth of calculations in which this involves him. He is still more confounded when he reflects, that it is not the human body only, that is endowed with the faculty of calling forth these incomprehensible energies, but that the most insignificant insect is vested with similar powers. A skilful naturalist has been able to ascertain, that in the body of the minutest caterpillar, there are upwards of *two thousand* muscles, all of which can be brought into action with as much facility at the will of that insect, and perform their several offices with as much accuracy, promptitude, and precision, as that with which the similar voluntary actions of man are effected. The most minute insect, whose whole life consists of but a few days, is in all its parts as perfect as the elephant that treads the forest of India for a century. Unlike the productions of men, all the minute parts of the works of God appear in greater perfection, and excite in us greater admiration, the more minutely and more accurately they are examined. If we turn our attention from the consideration of the complicated structure of animal bodies, and direct our observations to the economy by which the all-wise Creator regulates their existence, we have then abundant cause for admiration. We see that all the smaller creatures which serve as food for man, are particularly fruitful, and that they increase in a much greater proportion than others. Noxious animals in general multiply slowly, and whenever we find an unusual increase of such, we generally discover that something has been given by providence for the purpose of destroying, and counterbalancing them. Many species devour each other, and multitudes which might otherwise by their number become of serious injury to mankind, afford food for other creatures. The insect tribe increase with astonishing rapidity, and were these not destroyed by innumerable enemies, they would soon fill the air, and in the end would occasion the destruction of the whole animal and vegetable creation. The *offspring* of every animal with regard to number, bears a certain proportion to the duration of its life. The elephant lives to the age of an hundred years or upwards, the female consequently produces but a single young one at a birth, and that does not arrive at maturity till it is sixteen or eighteen years old. Nearly the same may be re-

marked of the rhinoceros, and of all the larger animals ; but in most of the smaller ones, whose lives are short, or whose increase is not so injurious to man as the increase of the others would be, we always find the number of their offspring much greater. No species has ever been found to increase so as to annihilate the others ; and this singular harmony, and just proportion, has now been supported for several thousand years. "One generation passeth away, and another succeedeth," but all so equally as to ballance the stock in all ages, and in all countries. Innumerable other interesting facts, will present themselves to the observations of a diligent and philosophical student of Natural History, calculated alike to expand the faculties of his mind, and to raise him in the scale of rational and moral excellence. Though the animal kingdom ranks foremost in point of importance, we may distinguish the same exquisite skill in vegetable productions ; it was my intention to have enumerated a few of them, but as I have already extended my paper to a sufficient length, I will, at a future time, offer a few observations upon the subject.

In conclusion, allow me just to suggest a hint to your correspondents, in the department of Natural History, I am persuaded it might be of great use to many of your readers, who have but an imperfect knowledge of that most useful science, if occasionally, articles were written illustrative of some of the more interesting parts of it. Such a plan would place within the reach of many a mass of valuable information, attainable only by those who have the means of purchasing large and valuable works, and who have also time to read them. I must acknowledge there has been many highly useful communications already made, but I regret much, they have but been few, compared with the original communications in the other department. I feel confident, such of your correspondents, who possess means of information inaccessible to the majority of your readers, will liberally come forward, and communicate the result of their observations to those who are less fortunately situated, and to whom they will be so highly acceptable.

JOHN SMITHURST.

Lea, July 19th, 1832.

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

LIBRARY OF ENTERTAINING KNOWLEDGE, Vol. 15.

VEGETABLE SUBSTANCES USED FOR THE FOOD OF MAN.—Amongst the great variety of scientific and useful publications of late issued from the press, none appear to us to claim more attention, as entertaining and useful works, than those published under the superintendence of the Society for the diffusion of useful knowledge. The great fund of information is concentrated in each of their small, cheap, and comprehensive volumes, together with the valuable sterling worth of the works from which many of the extracts are taken, place very much valuable instruction in the hands of those, who otherwise might have been profoundly ignorant on the subjects. The present volume contains 396 pages of letter-press, together with upwards of seventy illustrative wood-cuts. It treats of all the different species and varieties of vegetable productions used for the food of man, tracing each, as much as possible, to the origin of its use and cultivation. The whole is interspersed with numerous lively extracts from ancient works of merit, that it is in reality part of a "Library of Entertaining Knowledge. The culture of the earth is a pursuit which, in itself offers a sufficient distinction, not only between man and the inferior orders of animate creation, but also between man while in his merely animal state, and after he has become humanized by adopting the arts of civilization. That man who first, among a tribe of hunters or fishers, sows a grain or plants a root, and thus brings home the advantages of forethought to the business and the bosoms of his less provident fellows, becomes their benefactor, not merely by pointing out the means for avoiding the horrors of famine, and for lessening that succession of miseries, which must attend upon a wandering life, but also by relieving their minds from the selfish exigences that previously attended every moment, affording thereby leisure and opportunity for cultivating the social and kindly affections. It is not until men have placed themselves beyond that state of merely physical existence, wherein the plenty of to-day may be followed by the destitution of to-morrow, that the higher faculties and feelings of our nature can be expanded. Vegetables form the primary source of sustenance to every thing that lives. Were the earth without them, the effects of heat and cold, of drought and rain, would be so violent, that apart from all considerations as to food, the whole world would speedily become uninhabitable. Frosts and droughts would break, and the returning water would wash away the surface, until the whole would become one wide and swampy waste. The presence of vegetation prevents this desolating action, and converts what would otherwise be destructive agents, into ministers of abundance. No vegetable productions tend so much to

bring about this beneficial result as those which are cultivated for human food. By the shade they afford to the ground in the hot season, they check that evaporation, and prevent that excessive hardening of the surface, which, in an exposed wild, render the soil impervious and inert; while, on the other hand, the humidity which they imbibe during the rainy season, is again given out by continual and gradual evaporation, and they minister to the refreshment and production of all around them. In uncultivated countries the weather is mostly in extremes. Rain, when it comes, takes the form of an overwhelming flood, not gently entering into, and moistening the soil, but rushing along the surface, tearing up one place, strewing another with the *debris*, and reducing both to a state of indiscriminate ruin; while, scarcely has the flood gone by, when the returning heat evaporates the little moisture which is left behind, and burns up the coarse and scanty vegetation which the rains have fostered. All vegetable productions affording food, contain, in some proportion or other, a farinaceous* or non-fibrous, and granular substance, which, when dried, may be grounded or pounded into flour or meal, and if boiled in water, will form a pulpy substance. In regard to the consistency of this farinaceous principle, it exists sometimes in the form of an almost limpid fluid, and thence through different degrees of acquiring consistency, called inspissation, until in some cases, its hardness approaches to woody fibre. Those vegetable substances, which contain the largest proportion of farinaceous matter are best adapted for human food. Of this kind are both seeds and tubers. Farinaceous seeds are divided into two classes: the first of these are the seeds of annual plants, which are the true grasses, or plants of similar properties. They are styled the *Cereal*† corn plants, or grain bearing plants, the chief of which are wheat, rye, barley, oats, millet, rice, and maize. The tribe of cereal grasses is not restricted to these seven varieties, but includes numerous others, which, if they are not equally employed as food, are neglected only on account of the smallness of their seeds. None are unwholesome in their natural state, except *Lolium temulentum* (darnel) a common weed in many parts of England, the effects of which are undoubtedly deleterious, although perhaps much exaggerated. In the sepulchres of the Egyptian kings, which were opened by the naturalists and other scientific persons, who accompanied the French army to Egypt, was found the common wheat in vessels, which were so perfectly closed, that the grains retained both their form and their colour. The wheat buried there for several thousand years, was a proof of the ancient civilization of Egypt, as convincing as the ruins of temples, and the inscriptions of obelisks. The corn-plants, such as they are found under cultivation, do not grow wild in any part of the earth. In Sicily there is a wild grass called *Ægilops ováta*, which, it has been held, may be changed into corn by cultivation. Professor Larapie, of Bourdeaux, affirms, that having cultivated the seed of the *Ægilops*, the plant has changed its character, and has made approaches to that of wheat. Sir Joseph Banks, in a paper addressed by him to the Horticultural Society, in the year 1805, stated, that having received from a lady some packets of seeds, and among them one labelled, "Hill Wheat," the grains of which were scarcely larger than those of our wild grasses, but which, when viewed through a magnifying lens, were found exactly to resemble wheat; he sowed these grains in his garden, and was much surprised on obtaining, as their produce, a good crop of spring wheat, and the grains of the ordinary size. Every inquiry that

* From *ferina*, meal.

† From Ceres, the Goddess of corn.

was made to ascertain the history of these seeds proved fruitless. All that could be established, with regard to the place of their production, was that they came from India; but as to the particular locality, or the amount of cultivation they had received, or whether the grain was a spontaneous offering of nature, could not be ascertained. The foundation of the wheat harvests at Mexico, is said to have been three or four grains, which a slave of Cortez discovered in 1530, accidentally mixed with a quantity of rice. The Spanish lady, Naria d'Escobar, first imparted the same blessing to Peru, shortly after its introduction as is supposed into Mexico. Father Josse Rixi, or Fleming conveyed the first grains to Quito, and sowed them near the monastery of St. Francis, where the monks still show, as a precious relic, the rude earthen pot wherein the seeds first reached their establishment. The rice of Carolina is now the principal produce of that portion of North America. Mr. Ashby, an English merchant, at the close of the 17th century, sent a hundred weight from China to this colony; and from this source all the subsequent rice harvests of that division of the New World, and the large exportations of the same valuable grain to Europe have sprung.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

HORTICULTURE OF VENICE.—The principal *melons* are, the *Melamocesini*, easily known by the stem, being from two to three inches thick, and very knobby. The *Cantaloups*, with yellowish or whitish flesh, the *Rhampaghini*, which climb on trees and shrubs, and have their fruit closely covered with a whitish net: and the *Buchari* (*Bucharian Melon*) much cultivated on the islands of the Levant. These latter melons are of an elliptic form: their skin is smooth, and of a whitish yellow, the flesh is sugary, of a white colour, and in the centre, where the seeds are contained, it is hollow. They are sometimes one and a half feet in length, and several pounds in weight; their principal merit, however is, that they will keep good till Christmas, if kept in a dry and cool place. It is remarkable, that pieces of this very sweet fruit, become intensely bitter when rotten. The seeds of the melons are generally put in good wine a short time before they are sown, which is done in April. Holes of one and a half feet in diameter are made five feet apart; they are nearly filled with dung, and five or six seeds are sown in each, and covered with light soil. Two of the strongest plants only are left after they come up, and during their growth the most luxuriant shoots are cut out. Particular attention must be paid to observe the time of ripening of the fruit, which generally occurs at mid-day, and is known by the aromatic smell thrown out, (page 234.) The melons must then be cut, and kept in a cool dry place, as they lose their flavour entirely when left a few hours on the plant after their ripening. Not only the flesh of these melons is employed for food, but also the seeds which when bruised, and put into water with sugar, make a very agreeable liquid, (*semuda*.) The water-melons are also very extensively cultivated, much in the same way as the others. The seeds of the common sort are black, and those of the better variety (*Angurie zuccarine*) brownish yellow, with

black spots. The fruit weighs from ten to fifty pounds, and a criterion of its ripeness is, when on being struck, it gives a hollow sound; or when it cracks on being squeezed. Cucumbers are cultivated, but not much esteemed. Pumpkins are principal articles, in Venetian horticulture; and several, particularly *Cucurbita Melópepo* and *moscháta Duchesne*, are grown to great perfection. The last of these sometimes attains from three to four feet long, and 100lbs in weight. *Solanum Melongéna* and *Lycopersicum*, artichokes, carrots, radishes, spinach, and purple brocoli, are very fine; cauliflower, and several species of asparagus which are there used are plentiful; but Kohl-rabi, and common winter cabbage are not known. Celery grows wild near the sea. Fennel forms an eatable bulb above the root, for which it is much cultivated, as well as for its aromatic seeds. Lettuces are used only when young plants, they never form a head, in consequence of the heat of the climate.—*Pruss. Gard. Soc.*

SUCCESSFUL EXPERIMENT, tried by Mr. Knight, (Florist and Nursery-man, in the King's Road, Chelsea,) on a mulberry tree, which, except one very large branch, was either dead or decaying. When the sap had ascended, he barked the branch completely round near its junction with the trunk of the tree, and having filled three sacks with mould, he tied them round that part of the branch which had been barked, and by means of one or two old watering pots, which were kept filled with water, and placed over the sacks, from which the water gradually distilled, the mould in the sacks was sufficiently moistened for his purpose. Towards the end of the year, he examined the sacks, and found them filled with numerous small fibrous roots, which the sap having no longer the bark for its conductor into the main roots of the tree, had thus expended itself in throwing out. A hole having been prepared near the spot, the branch was sawn off below the sacks, and planted with them, the branch being propped securely. The next summer it flourished and bore fruit, and is still in a thriving state. *Jesse's Gleanings in Natural History*, page 145, extracted by

A CONSTANT READER.

APPLES of very curious kinds are sold at Zurich, some as white as snow. The inhabitants are particularly famed for the cultivation of flowers, and excel in China asters. At Lausanua, the red currants are of an extraordinary size. In Russia, a variety of rice is used, which grows in Siberia, and is more succulent than that of America. Enquiries should be made about this, because, possibly, in it our bog soils might gain the acquisition of a new production.—*Gard. Mag.*

ON THE CULTURE OF THE MELON.—Seeds ten years old are preferred; they should be sown in February, and the plants be several times transplanted in a moderately warm frame, before they are put into a hot frame for fruiting. This is done when the shoots are about a foot long, and they are then shortened to three eyes. The succeeding shoots produced by those so shortened will flower abundantly; and, during their flowering, air must be freely given, otherwise they will not set well. Water-melons must not have their shoots shortened; and when swelling their fruit, they require more water than the others.—M. EBERS, BERLIN.—*Pruss. Gard. Soc.*

TO PRESERVE GRAPES RIPENED IN THE OPEN AIR, FOR TABLE THROUGH WINTER.—In the spring before the buds have begun to swell, take a healthy well-ripened shoot of the preceding year, and draw it up through the bottom hole of a flower-pot of about fifteen inches in diameter; then fill the pot with rich soil, and cover both the soil and the outside of the pot with moss to keep in

the moisture. Water now and then, according to the season. By the end of August, cut the shoot half through, just below the pot, so as to increase the number of roots, which will be formed about this time in the soil contained in the pot. In the course of the month of October, according to the season, cut the shoot quite through, and remove the pot with the vine laden with from twelve to twenty bunches of fruit, to a dry airy room, with a northern exposure; here water occasionally, till the leaves drop off, but no longer. Thus treated, the fruit will keep good on the vine till the end of February, preserving its natural flavour. The best sort for this purpose is the white sweet-water.—*Pruss. Gard. Soc.*

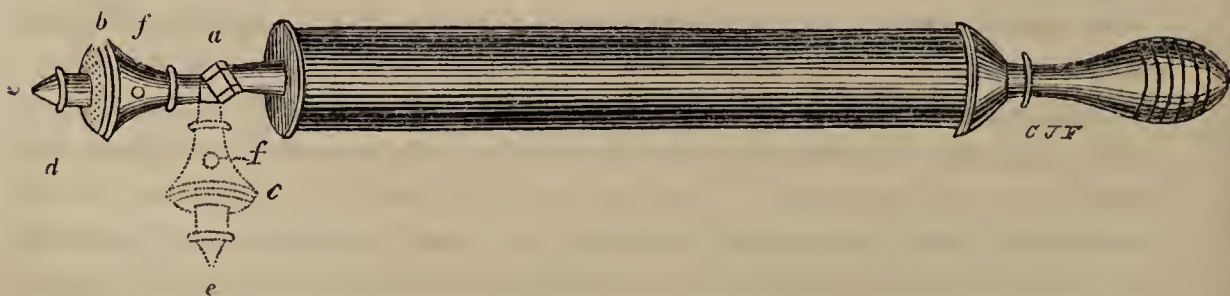
GERMINATION OF SEEDS.—Mr. Bosse finds that the germination of seeds is accelerated by moistening them malic acid; and also that covering seeds with the pulp of rotten apples, causes them to germinate sooner than usual.—*Pruss. Gard. Soc.*

CHLORIDE OF LIME.—Unless spread very thin on the ground, it will do harm; spread thin, and intimately mixed with the soil; when the latter is in a dry state, its effects are similar to those of the common carbonate of lime.—*Pruss. Gard. Soc.*

CULTURE OF THE CARNATION.—The flowers are propagated either by seed or by layers; the first is the method for raising new flowers; the other is the way to preserve and multiply those of former years. To raise them from seed; that from the best double flowers should be selected, which will produce the strongest plants, and should be sown in April in pots or boxes of fresh light earth, mixed with rotten cow manure, exposed to the morning sun, and occasionally watered. In a month the plants will appear, and in July should be transplanted into the beds of the same earth, in an open airy situation, at six inches distance, and there left to flower. When in flower, the finest kinds should be marked, and all the layers that can be, should, during the time of flowering, be laid down from them; these will have taken root by the end of August, and are then to be taken off and planted out in pots in pairs.—E. RUDGE, Esq. F. R. S.—*Gard. Mag.*

SIEBE'S UNIVERSAL GARDEN SYRINGE.—(Fig. 115) consists of only one apparatus, which can instantly by turning a pin, be applied so as to serve the purpose of four different caps. By means of a universal joint (a) the cap or head

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b) may be turned in any direction, and to any angle (c). The pin by which the alterations in the rose head are effected, works in a groove (d) in the face of the rose; and by it a very fine shower, a coarse shower, or a single jet from one opening (e) may be effected at pleasure. The valve (f) by which the water is admitted to the syringe, is in the side of the rose.—*Gard. Mag.*

FLORICULTURAL INTELLIGENCE.

NEW AND VERY RARE PLANTS, figured in the Botanical Periodicals for August.

CLASS I.—DICOTYLEDONES, OR EXOGENES.

LEGUMINOSÆ.

DILLW'YNIA GLYCINIFOLIA.—Glycine-leaved Dillwynia. A beautiful plant. Flowers of a bright orange and dark-colour. Native of New Holland, where it was originally found in King George's sound, by Mr. Menzies, and more recently by Mr. Baxter. *Bot. Reg.* Culture.—It requires the shelter of the greenhouse and should be potted in sandy loam and peat.

ACA'CIA PENTADE'NIA.—Fern-leaved Acacia. A plant possessed of very graceful foliage. Flowers, orange-yellow. Native of the South-west coast of New Holland, where it was collected by Mr. Knight. Culture.—It will thrive with the same treatment as other New Holland Acacias, and is propagated by cuttings in the same manner.—*Bot. Reg.*

EPACRIDEÆ.

SPHENO'TOMA CAPIT'ATA. Long-leaved Sphenotomo. Flowers blue and white. Native of the South-west coast of New Holland, whence seeds were obtained by Mr. Knight. Culture.—It requires the shelter of a greenhouse, and the same treatment as the Epacrises, Styphelias, and other well known plants of the same natural family. *Bot. Reg.*

SOLANEÆ.

SOL'ANUM CRI'SPUM.—Crimped leaved Solanum. Flowers lead coloured blue, Native of Chiloe, found commonly in waste places, also abundantly in hedges, near the city of conception, and in the district of Carcamo and Palomares. Culture.—It appears likely to be perfectly hardy, in which case it will be very ornamental; if tied to a stake and thus forced to grow erect, it will throw out a great number of lateral branchlets, at the end of every one of which is a bunch of flowers. It grows in any common soil, and may no doubt be propagated by cuttings.—*Bot. Reg.*

SCROPHULARINEÆ.

SALPIGLO'SSIS ATROPUR'UREA.—Dark purple Salpiglossis. This is a very beautiful species. Flowers of an intense blackish purple colour. Native of Chile, where all the species of Salpiglossis grow. They are found springing from the sides of dry clay banks, baked hard by the scorching sun of that climate, a situation in which the moisture that the earth contains, is parted with very slowly, and with considerable difficulty. Culture.—When grown in the open border, they are apt to die suddenly, so that only a few remain out of a whole bed: this is probably owing to the soil in such instances being too light, and therefore subject to sudden dryness, a condition which their tender roots, are not born to endure. It is a biennial. The seeds should be sown in the summer, so that the young plants may be well established by the end of autumn; they should then be kept in a good airy greenhouse during the winter, and afterwards be either shifted into large pots for flowering under glass in the succeeding summer or transferred to the open ground at the same time, and in the same manner as tender annuals.—*Bot. Reg.*

RANUNCULACEÆ LINDL. PÆONIACÆ.

PÆONIA OFFICINÀ' LIS VAR. ANEMONIFLORA.—Anemone flowered variety of the common Pœony. This plant is well deserving a place in any garden. Flowers of a rich deep crimson colour. The stamens are converted into narrow, acuminate, and spirally twisted petals, bearing the same relation to the original stock as the Anemone-flowered, or Warratah Camellia does to the true Camellia 'aponica, and it is scarcely less beautiful in its appearance.—*Bot. Mag.*

ERICEÆ.

ARB'UTUS PILO'SA. Hairy Arbutus. Flowers white, streaked with reddish brown, stem very hairy. Native of Mexico, was raised from seeds received from Mr. Don, by Mr. Neil. Culture.—It is perfectly hardy, and will grow in sandy peat soil, and may be propagated by layers.—*Bot. Mag.*

RHODODENDRON INDICUM, VAR. SMITHII. Smiths hybrid Indian Rhododendron. This splendid hybrid is the offspring of *R. phœniceum*, that had been fertilized by *R. indicum*, and was raised by Mr. Smith, at Coombe wood, in the spring of 1828. It partakes of the characters of both parents, and like them is rather tender, but it appears to be a more desirable plant than either, is of free growth, and produces its flowers in great abundance. Flowers of a rosy salmon colour, large and spreading, expansion from two and a half to three inches, spotted in the inside with darker spots.—*Brit. Fl. Gard.*

CAMELLIÆ.

CAMELLIA JAPONICA VAR. COMPACTA.—Close flowering Camellia. This is a neat flowering shrub, distinct from every other white flowerer, having a good deal of the character of the *C. Sasanqua* in the flowers, but the leaves of the Japonica, it is thought to have been raised by Messrs. Young.—*Lodd. Bot. Cab.*

MALVACEÆ.

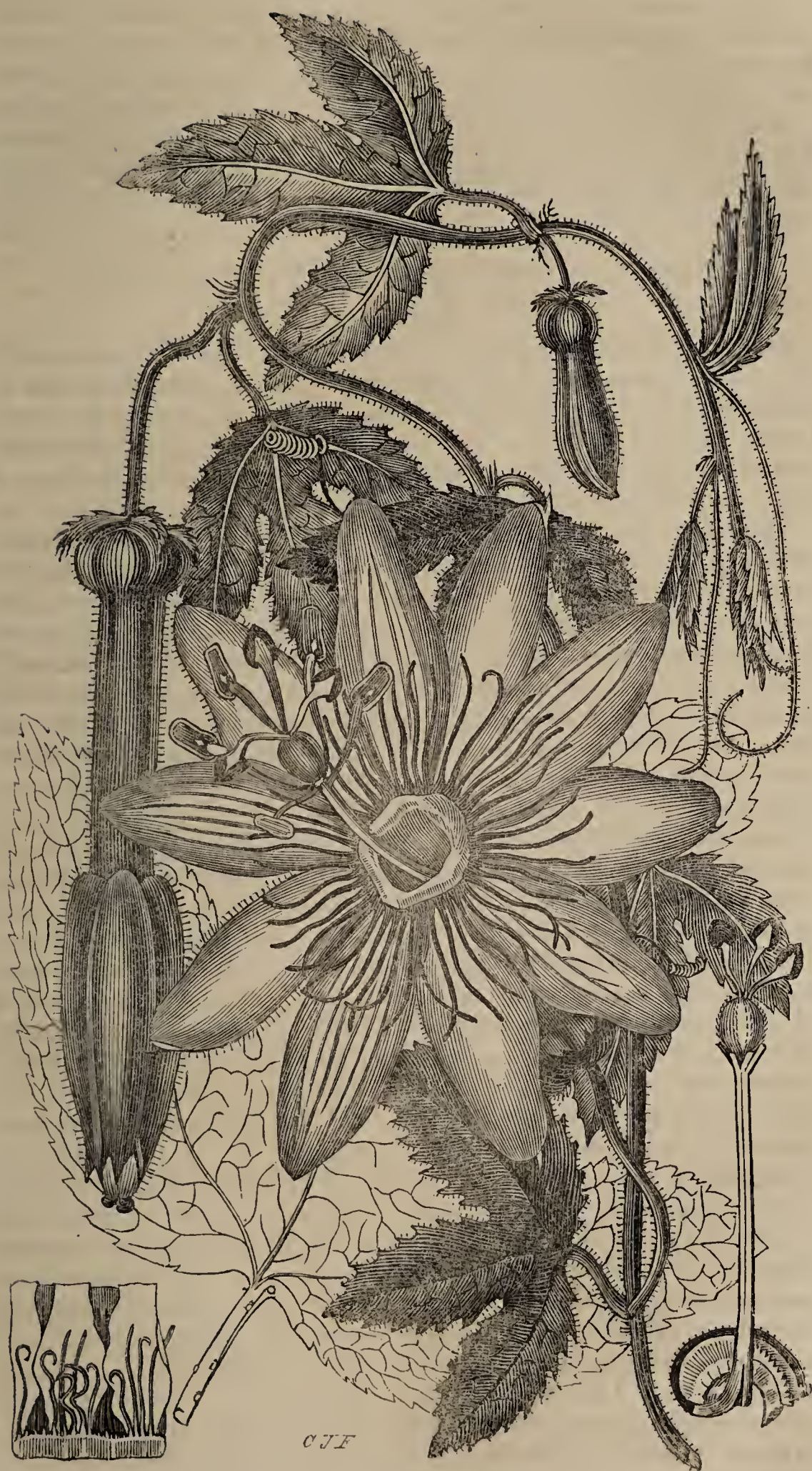
HIBISCUS SPLENDENS.—The resplendent Hibiscus. A handsome plant, bearing magnificent rose-coloured flowers. Native of New Holland, where it grows to 20 feet high. Culture.—It may be increased by cuttings or seeds, and should be planted in a mixture of loam and peat, and be preserved in a warm greenhouse.—*Lodd. Bot. Cab.*

PRIMULACEÆ.

PRIMULA VERTICILL'ATA.—The whorled Primrose. Flowers yellow, leave-growing in whorls on the flower-stalk, hence its specific character. Native of mount Kusma, near Kurman, in Arabia Felix, where it was discovered by Forskael: it grows, according to him a foot or more in height. Culture.—It will thrive in a pot filled with a mixture of peat, loam, and rotten dung, and may be sheltered in a frame during winter.—*Lod. Bot. Cab.*

PASSIFLOREÆ.

TACSÓNIA PINNATISTIPULA. (fig. 116) Pinnated Stipuled Tacsonia. This elegant passion-flower is well deserving a place in any collection of plants, the flowers are of a bright rose colour, and very showy. It is a native of Talcahuano, and Valparaiso, in Chile. The genus is principally distinguished by the long tube of the Perianthennium. The name is of Peruvian origin, Tacso being applied to several species of this genus in Peru, and was first employed by Jussien, to denote this group. Culture.—It requires the same treatment as the Passifloræ generally and seems likely, in favourable situations, to prove quite as hardy as the *Passiflora carúlea*.—*Brit. Flower Garden,*



LABIATÆ.

COLEUS AROMATICUS.—Sweet scented, Coleus. This plant appears to be very commonly cultivated in Indian gardens, chiefly on account of its great fragrance. The leaves are frequently eaten with bread and butter, or bruised and mixed with various articles of food, drink, or medicine. It is probably also indigenous in that country: its flowers are purple and not remarkable for beauty. Culture.—It is a stove plant, and flowers from March to May: it grows in light sandy loam and peat, and may be readily increased by cuttings. In gardens it is often called *Gesneria odorata*.—*Bot. Reg.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDÆÆ.

PTEROSTYLIS BANKSII.—Large-leaved Pterostylis. This plant is a native of New Zealand, where it was first discovered by Sir Joseph Banks, at the time he accompanied Capt. Cook round the world. It was also found by Mr. Allan Cunningham, in 1826, growing on the banks of a stream, which is received into the bay of Islands.—*Bot. Mag.* Culture.—It will require the heat of the stove, and we should think would thrive in peat and loam.

MAXILLARIA PLACANTHERA.—Flat-anthered Maxillaria. A parasitic plant. Flowers yellowish green, spotted with brown. Introduced from Brazil by Mrs. Harrison.—*Bot. Mag.* Culture.—It requires a moist stove like the other plants of the same genus, and should be potted in turfy peat soil, mixed with a portion of decayed wood or saw-dust, and kept in a damp bottom.

MAXILLARIA GRACILIS. Slender Maxillaria. This curious little plant is very slender in its habit, and its height does not exceed four inches. Flowers red and yellow, native of Brazil. Culture.—It requires a moist stove, and should be potted in moss vegetable earth, and small pieces of broken pot. It may sometimes be separated for increase.—*Lodd. Bot. Cab.*

NEW SEEDLING CACTUS.—A new seedling Cactus, between speciosa and speciosissima, flowered last April, in the gardens at Plaistow-Lodge, Bromley, Kent; the plant consists of one shoot two feet high, with three large flowers on the top, of a deep scarlet colour.—*T. PRESSLEY.—Gard. Mag.*

NEW VARIETY OF THE HAWTHORN.—This is one of the most lovely trees, and much more desirable than the old pink thorn, or as it is commonly called "scarlet thorn." The flowers of the new kind are each as large as two-thirds of the breadth of a sixpenny piece; they grow in bunches containing from twelve to twenty flowers each, the petals are of a most beautiful carmine-crimson colour, except in their claws which are white, and thus constitute a white eye surrounded by a broad crimson orbit.—*Gard. Mag.*

CULTURE OF THE HIBISCUS ATTENUATUS.—This beautiful plant can scarcely be propagated by seed. Being herbaceous, it dies down to the soil every year; it should be kept dry, and free from frost during the winter, and re-potted in light rich soil, mixed with river sand in the spring. It should be placed in a frame, and abundantly watered during summer; but in autumn, when the plant begins to lose its leaves, watering must be gradually left off, till it is in a state to have the stem cut over, and the pot containing the root placed in the back shed of a stove.—*Pruss. Gard. Soc.*

FLOWER SEEDS, when a few years old, are said to produce more double flowers than those which are sown the year after their ripening.—*Pruss. Gard. Soc.*

A CHOICE COLLECTION OF NEW AND VERY RARE PLANTS,

BY MESSRS. MACKIE, OF NORWICH,

WE feel a pleasure in being able to present to the notice of our readers, the old established nursery of Messrs. Mackie, of Norwich, for the last fifty years, forest and Ornamental trees have been cultivated to a very great extent. It has of late been much improved, by a well laid out ornamental garden and walks, and great pains appears to have been taken to introduce new and beautiful plants; a list of some of the rarer sorts has been furnished us.

NEW HARDY SHRUBS.

Acácia affinis	———— montividensis
Auracária imbricatà	Euónymus nànus
Arbùtus procèra	———— obovatus
Bérberis glumàcea	Junipérus recúrva
———— rèpens	Maclùra aurantiàca
———— aristata	Piptánthus nepalénsis
Cherry, double-blossomed French	Ribes sanguineum
Cydònia sinénsis	Schinus Litri
Dáphne pòntica rosèa	Sophòra japònica
———— cneòrum máxima	Rúbus spectábilis
Escallònia rubra	Thirty choice varieties of Ghent
———— viscòsa	Azaleas.

NEW AND CHOICE HERBACEOUS PLANTS.

Alstræméra Hookéri.	———— flexuósus
———— Simsii	Narcissus thirty varieties
———— Flós Martíni	Nuttállia pedàta
———— Psittacína	Oxalis floribúnda
Delphinium speciòsum	———— tetraphylla
———— phæniceum	Pentstèmon glandulósus
DodecàtheonMèdia álba	———— procèrus
Erythrònium americánum	———— venústus
Francoa coccinea	———— speciosus, &c.
Gaillárdia aristàta	Phlóx pumila
———— bicolor	———— verna
Gladiólus Psittacínus	———— glomeràta
———— and Herbert's collection.	———— procumbens
Goodyéra pubéscens	———— crassifolia
Hibíscus moscheutos	———— roséa
———— Munroána	———— odoràta grandiflora
Làthyruſ latifòlius albiflorus	———— elegans
Lubínia atropurea	Phlóx odoràta rosea
Lobelia Tupa coccinea	———— latifolia rosea
———— Lows purple	———— marylandica
Lupinus polyphy'llus àlbus	———— hybrida
———— plumòsus	———— and forty other choice kinds.
———— lépidus	Práttia begoniafólia
	Pœonia thirty kinds

GREENHOUSE PLANTS.

Acàcia pubescens	Chirónia trinérva
——— conspicua	Chorizéma Henchmànni
——— diffùsa	——— rhombea
Andròmeda buxifolia	Doryánthus excélsa
Azàlea sinénsis	Eríca, sixty choice kinds
Cactus Jenkinsóni	Eutáxia Baxtèri
——— Curtisii	Glycine coccínea
——— new scarlet	Hibíscus Lindleyàna
Calceolària Youngii	Hovea Celsii
——— and five varieties.	——— latifolia
——— Wheelerii	——— lineàris
——— and five varieties	Ixora roséa
Calindrìnia grandiflora	——— coccinea
Caméllia reticulàta	Kennédia monophylla longi-racemosa
——— Colvillii	Ledocarpum pedunculare
——— eximia	Malva miniata
——— punctàta	Oxalis Bowiéana
——— excélsa	——— Déppii
——— eclipse	Rúellia Sabiniana
——— élégans	Scottia dentata
——— rósa múndi	Silène règia
——— Dahliaflora	Sollya heterophylla
——— imbricàta	Thunbérgia alata
——— Rawsònia speciosa	——— grandiflora
——— rosa-sinénsis	——— fragrans
——— corallina	

NATURAL HISTORY.

BATS of the ordinary size, are very numerous in Jamaica; they are found in mills and old houses, especially such as are little occupied; they do great mischief in gardens, where they eat the green peas, opening the pod over each pea, and removing it very dexterously. Bishop Heber says, “the vampire bat of India is a very harmless creature, of habits entirely different from the formidable idea entertained of it in England. It only eats fruit and vegetables, and indeed its teeth are not indicative of carnivorous habits; and from blood it turns away when offered to it. During the day-time, it is, of course, inert; but at night it is lively, affectionate, and playful, knows its keeper, but has no objection to the approach and touch of others.” Mr. Waterton, however, when speaking in the “Wanderings” of the vampire of South America says, “there are two species in Demerara, both of which suck living animals; one is rather larger than the common bat, the other measures above two feet from wing to wing extended. So gently does this nocturnal surgeon draw the blood, that instead of being roused, the patient is lulled into a still profound sleep.” The larger vampire sucks men and other animals; the smaller seems to confine itself chiefly to birds.—*Mag. Nat. Hist.*

EXPERIMENTS ON BEES' WAX AND VEGETABLE WAX.—M. Oppermann states, that the vegetable wax of the East Indies is of a yellowish white colour, transparent at the edges, more brittle and greasy to the touch, but less compact than bees' wax. Its taste is rancid when it has been masticated some time: its sp. gr. 0.97; at 124 deg. Fahr. it melts, remains fluid at 112 deg. and solidifies at 109 deg. It is soluble both in spirit and in æther; the former solution solidifies in cooling, while the latter merely deposits light flocks Japan wax, yielded by analysis,

Carbon.....	70,9683
Hydrogen.....	12,0728
Oxygen.....	16,9589
	<hr/>
	100,0000

Brazilian Wax very closely resembles the foregoing: their colour, consistence, and odour almost the same; the Brazilian is however distinguished by the yellowish brown pellicle with which it is covered: it fuses at 120 deg. and solidifies at 113 deg. The spirituous and ætherial solutions resemble those of the Japan wax. Brazilian wax gave by analysis,

Carbon.....	72,8788
Hydrogen.....	12,0297
Oxygen.....	15,0915
	<hr/>
	100,0000

Bleached and purified bees' wax is harder than the foregoing: but the vegetable wax, dissolved in four parts of oil, gives a compound which is three times firmer than that obtained with the same quantities of bees' wax and oil; but the latter gives greater consistency to fat than the former.

Alcohol, even when hot, dissolves bees' wax with difficulty; the solution solidifies by cooling, and yields a white granular transparent mass. Æther when boiling forms a clear solution of bees' wax, which becomes turbid by spontaneous evaporation; it afterwards thickens, and the wax when separated, appears to have suffered no change. Caustic soda at first merely softens bees' wax, but afterwards converts it into soap, though not so readily as the vegetable wax. By analysis, bees' wax yielded.

Carbon.....	31,2910
Hydrogen.....	14,0726
Oxygen.....	54,6364
	<hr/>
	100,0000

Ann. de Ch. et de Phys.

THE ESQUIMAUX LAKE, NORTH AMERICA.—This lake is said to extend from north to south more than one hundred and fifty miles, and about the same from east to west. It is reported to be full of islands, to be every where brackish, and to receive two large rivers besides the eastern branch of the Mackenzie. It may be plausibly conjectured, that the alluvial materials brought down by the Mackenzie, and other rivers have gradually formed a barrier of islands and shoals, which by preventing the free access of the tide, enables the fresh water to maintain the predominance behind it. The action of the waves of the sea has a tendency the height of the barrier, while the currents of the rivers and the ebb tide preserve the depth of the lake. A great formation of wood coal will, no doubt, be ultimately formed by the immense quantities of drift timber deposited on the borders of this lake.—J. RENNIE.—*Mag. Nat. Hist.*

THE RED OR GUERNSEY PARTRIDGE, (*Perdrix Rufa*, Ray.)—This bird has been just introduced into the principality of Wales. The Rev. Mr. Lewes, of Dyffryn, having bred this year eight brace, under a bantam fowl, adopting the same system of feeding them as that of the pheasant, and chopped eggs. They much resemble ours in colour and size, with the exception of the legs and bill, which are of a vermillion red. They run much like the land-rail, (*Ortygometra crex*), and are very reluctant to take wing. “Mr. Daniel says, they are plentiful near Oxford. The Marquis of Hertford, having imported many thousand eggs which were hatched under hens, and liberated; and so early as 1777, he says he saw a covey, consisting of fourteen of these birds, several of which he shot; many coveys may be found in the neighbourhood of Ipswich, or preserved manors where they seem to prefer the waste healthy ground to corn fields, the favourite haunts of the common species.”—*Mont. Ornith. Dict.*

SERPENTS.—M. Duvernoy, who has devoted much time to the study of the organization of venomous serpents, has ascertained that, besides the venomous teeth in front, the existence of which has long been known, they have in the hinder part of the jaw longer and stronger teeth, of as great malignity. He is also inclined to think, that the secretions of the lachrymal glands in some descriptions of venomous serpents, do not go to moisten the eye-balls, but enter the mouth, and assist in communicating saliva to the food.

TINCTURE OF ROSES.—Take the petals of the common rose (*centifoliæ*), place them, without pressing them, in a bottle, pour some good spirits of wine upon them, close the bottle and let it stand until it is required for use. This will keep for years, and yield a perfume little inferior to Otto of roses; a few drops will suffice to impregnate the atmosphere of a room with a delicious odour. Common vinegar is greatly improved by a very small quantity being added to it.

SKINLESS OATS.—At the meeting of the Warwickshire Agricultural Society, a specimen of the *Avenacea Farina*, or Skinless Oat, was produced by the Rev. Mr. Knott, which had been plucked that morning out of a piece of ground belonging to that gentleman, at Wornleighton. It was produced from seed furnished to him by Mr. Tucker, of Heanton, Punchardon, near Barnstaple, Devonshire, and grown in the season of 1830, for the first time it was ever produced in Great Britain, by Thomas Derenzy, Esq. of Clobemon Hall, who obtained the seed through a friend of his at Rotterdam, whither it was imported from Shantag, a remote district in China, and was quite unknown to Europeans till within these three years. The advantages which this extraordinary and valuable grain possesses over all other kinds of oats, are numerous, viz.:—When thrashed from the sheaf, it is exactly like oatmeal, and is fit for immediate use for culinary purposes, and every other sort which oatmeal is consumed, the grain being quite free from every particle of rind or husk. The flavour is delicious, and it contains much more farinaceous matter. There is, of course, a considerable saving of oats, and expense of kiln drying, grinding, sifting, &c. &c.; and one peck of it contains more nutritious food for a horse than three pecks of common oats. The produce is most astonishing, the average being twenty-six barrels, of fourteen stone to the Irish acre—the exact quantity grown by Mr. Derenzy on one acre. It was not sown till the 4th of May, 1830, and was reaped early in August the same year. It is remarkably hardy, and well adapted for this climate.”

PART III.

I.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

At the meetings of this Society for the month of July, papers have been read in the black Corinth grape, which in a dried state, forms the currants of the shops, and on the cultivation of the Camellia, more especially as regards the propagation of the *C. reticula*. The first was by Mr. R. Thompson, of the Society's garden; the second by John Allnut, Esq. of Clapham, whose great success with the variety on which he particularly dwells, leads us to hope that his hints will lessen the difficulties hitherto experienced in increasing this beautiful plant.

The articles exhibited have again been of the finest description, particularly the Black Hamburg, black Frontignae and white Constantia grapes, the black Tartarian, Bigarreau and early purple Griotte cherries, the Grosse mignonne and Royal George peaches, and the Elton, Wilmots, Superb, old pine and yellow chili strawberries. Mr. Myatt, of Manor Farm, Deptford, produced his celebrated pine apple, strawberries, which proved to possess the richest flavour. We have observed also, Hybrid Cactuses, Gladioluses, and Calceolarias. Rhododendrons, Azaleas, *Oncidium fletuosum*, *Fuchsia globosa*, Dahlias, Hollyhocks, Roses, the *Magnolia glauca* and *Thomsoniana*, *Habenaria fimbriata* and new sp. of *Gaura* and *Aster* from California. A very ingenious model of an Orange-box, was exhibited by Mr. Allnut; its bottom and sides were composed of slate, running in grooves in a wooden frame. The whole was of light appearance, and could be taken to pieces with the greatest facility.

In addition to the above, the prize exhibition of Roses took place on the 3rd instant, and was as beautiful as can well be imagined. The list of competitors, comprised the most distinguished of the cultivators in the neighbourhood of London. The medals were finally adjudged as follows:—the large silver Medal to Mr. John Lee, of Hammersmith, and Banksian Medals to Lord Grenville, and Mr. James Young, of Epsom. A Banksian Medal was also recommended to be given to Mr. Wm. Smith, gardener to the Earl of Liverpool, for his Yellow Nvisette Rose.

SHEFFIELD HORTICULTURAL SOCIETY.

The third Exhibition for the present year, was held in the Music Hall, on Wednesday, August 8th. The supply of fruits and vegetables were very good, but upon the whole, neither the attendance or show of flowers was equal to former exhibitions.

MANCHESTER FLORAL AND HORTICULTURAL SOCIETY.

The last meeting for this season was held in the Exchange dining-room, the Exhibition was inferior to former meetings, and the attendance of company rather thin.

LIVERPOOL FLORAL MEETING.

The third and last meeting was held on Wednesday, August 1st, in the Corn Exchange; the vegetables were generally of a superior description, the celery particularly so; there were also some very excellent grapes, but upon the whole, the show was very inferior to the corresponding one last year.

II.—MONTHLY HORTICULTURAL CALENDAR,

FOR SEPTEMBER.

The temperature now begins to decline, the nights lengthen and evaporation greatly diminishes, many varieties of fruit ripen, and should be gathered during this month. Cucumbers and melons will begin to require matting down at night. All articles used for pickling, as cucumbers, onions, nasturtiums, &c. should now be gathered, transplant all articles intended for use this autumn, which plant as early in the month as possible. Prepare the ground for planting fruit trees, and towards the end of the month, or beginning of next, if they be pretty ripe, you may remove them, p 144 and 191. At the end of the month, if the weather is cold begin to get in all your greenhouse plants, prepare mould for florists flowers, and make much of every day in this month.

FRUIT DEPARTMENT.

Peaches and Nectarine Trees, if attended to in former months, will now require merely looking over, to see that the fruit is exposed to the influence of the sun.

Cover Morella Cherries with nets, if not done before.

Figs out of doors will now be ripe, see p. 71, 95, and 386.

New Strawberry beds, should be made, if not done before, p. 95, 329.

Buds put in last month, and July, will most probably require the bandages a little loosening.

Grapes. Vines in pots, now brought into the vinery will ripen their fruit in January, p. 6, 185, 490, 536. Vines in frames and the open air p. 73, 193, 309, 337, and 339.

Pine Stoves. If the fruit be chiefly ripe, renovate your succession pits with a good portion of new bark, and shift the plants into pots large enough for them to fruit in; for the regulation of their heat, see p. 374.

Peach houses &c. If the fruit is over expose the trees to the open air.

Peach or Cherry Trees in pots. If the wood is ripe place under a north wall to prepare them for early forcing.

FLOWER DEPARTMENT.

Carnation layers potted out last month must remain the open air, and receive gentle waterings, if required, p. 199 to 200.

Ranunculusses now planted in frames will bloom in January.

Hyacinths should be planted about the end of the month, they thrive very well, however, if planted in the beginning of Nov. see p. 583.

Pæonia Moutan cuttings may now be grafted on the tuberous roots of *P. officinalis*.

Camellias may now be grafted and budded, but we prefer the spring season, p. 357 to 364.

Auricula Seeds, as also those of Tulip, Ranunculusses, Anemone, &c. may now be sown in boxes of fine light mould, although we have invariably found them do better when sown as soon as they are gathered. p. 56.

Prepare beds for tulips, p. 104, Anemones and Narcissus, p. 144.

Erica cuttings, Diosmas and other delicate greenhouse plants may still be put in, p. 96, and 455.

Pink pipings, put in last month, should, if properly struck, be transplanted in beds to remove in the spring.

Propagate Pelargoniums by cuttings at the end of the month, p. 102.

Mignonette may still be sown in pots, to stand the winter in frames, p. 96, and 144.

Ten weeks stock sown early this month in pots, and sheltered in frames, come into flower early in the spring.

China Rose cuttings strike very freely now, but they sooner become finer plants, if put in during the spring months, p. 245 to 252.

VEGETABLE DEPARTMENT,

Mushroom beds should now be generally made; be careful in spawning that the heat does not rise above 55 or 60 degrees, or the spawn will be destroyed.

Celery earth up as it advances in growth, p. 96, 289, 290, and 453.

Lettuce Plants should be planted out for October, also sow three times before the 20th to preserve in frames, and warm borders throughout the winter.

Endive may be planted out two or three times in the month.

Onions must be taken up in fine weather, and spread on a floor or flue in an airy situation dry.

Cauliflower plants from seed sown last month will some of them be ready to prick out for sheltering through the winter, choose some rich light mould for the purpose, if a score or two were potted singly in 60-sized pots, and sheltered in the same frame through the winter; they will come in about a fortnight earlier than the usual time.

Herbs fit for cutting should be gathered in fine weather.

Welsh Onions may still be sown, if not done last month.

Carrot seed may yet be sown for young ones in the spring.

Raddishes for late crops may be sown twice this month, in the beginning and middle.

Normandy Cress may be sown, if not done last month.

Cabbage Plants should be planted out early in the month, in rows 12 inches apart, and six inches from plant to plant in the rows, to use as coleworts for November. Those sown last month will require pricking out in beds, to plant out early in the spring.

THE HORTICULTURAL REGISTER.

OCTOBER 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—ON TRAINING FRUIT TREES.

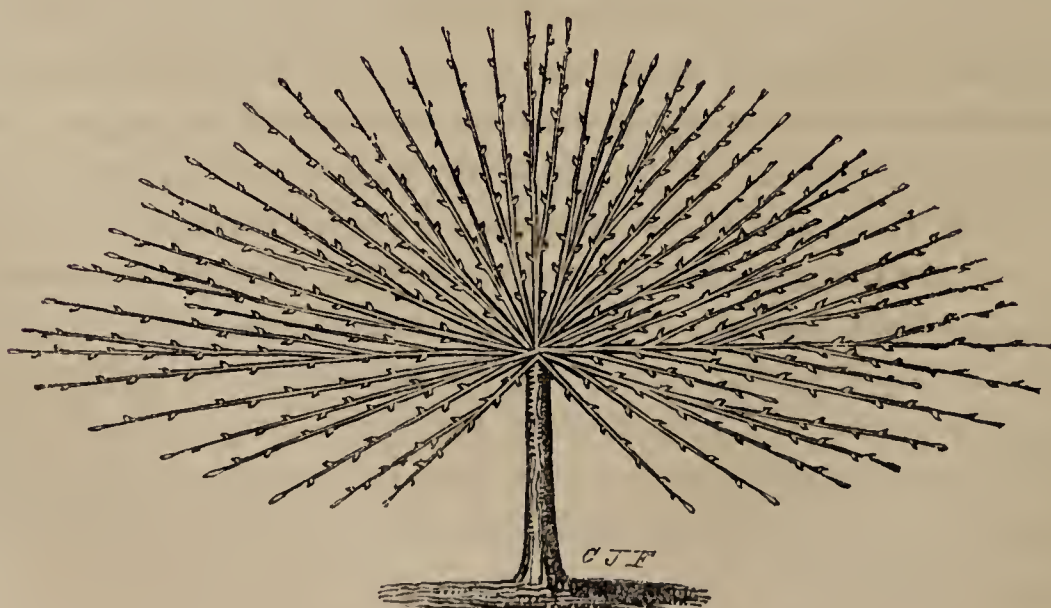
BY A JOURNEYMAN GARDENER.

It is astonishing how deficient most practical men of our profession are in the art of training trees. We see in almost every garden, trees trained upon the old *world* fashion, that of laying in a twig wherever there is an inch of brick to be seen, without any rule or principle, which is certainly a great stigma upon the profession. Young practitioners as well as old are in the same fault, and notwithstanding the present rapid march of intellect, they go on in the same way as their fathers did in past ages. Considering a garden as a place of pleasure to amuse and delight, the enjoyments derived from it must be according to its taste and state of keeping. Now as the walls form one of the principle objects in a garden, so the trees upon them should be in a good system of training, as the beauty of the whole garden depends upon them in a great measure. Handsome trees, I admit, would be a poor recompence, if they could only be obtained at the expense of the benefits which ought to be derived from the wall, the purpose for which it was erected. But when it can by experience be shown, that the greatest crops are in general those obtained from trees possessing the greatest symmetry

and elegance, so great blame must necessarily be attached to those who have not their trees trained upon the form most suitable for utility and elegance, the blame may lie with the gardener, with his master, or with both, as the case may be: if with the gardener, he is a disgrace to his profession; if with his master, it is a disgrace to his taste; and as he is perfectly at will to please himself in that particular, so other persons are also at will to question his taste, whether it be refined or ridiculous. I have been partly induced to send you these thoughts by seeing in the Register two articles upon training, one by Mr. Mearns, and the other by Mr. Haythorn, upon both of which I take the liberty of making a few remarks.

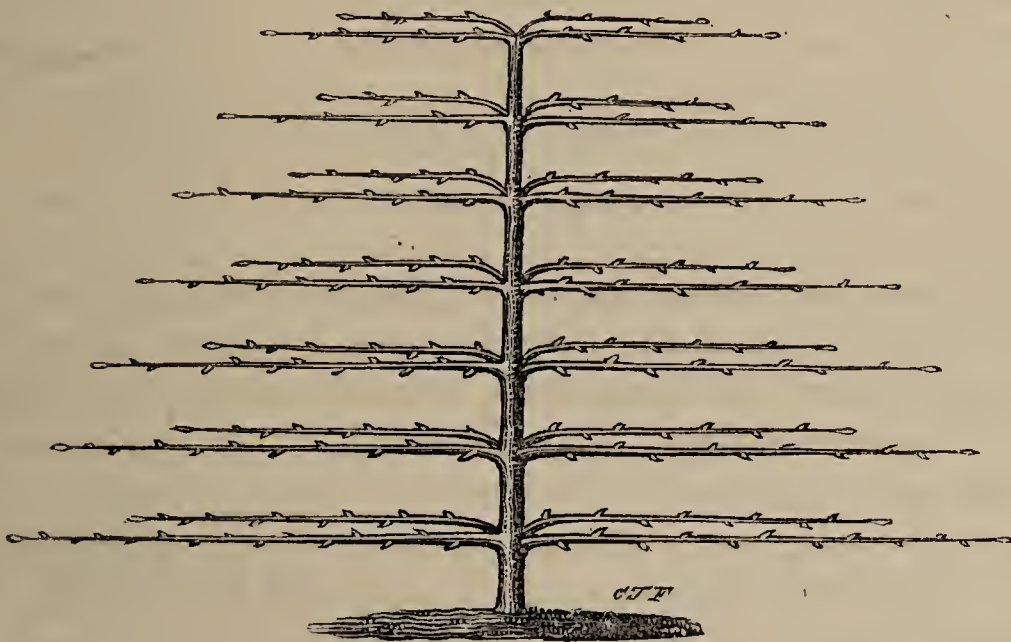
I think Mr. Haythorn did as well as could be done with the old trees he had to deal with, unless he had actually stubbed them up, root and branch, the plan I would undoubtedly have taken, had they been left to my will. I can only see that by his method, he is protracting for a very little period the existence of the aged and worn out trees, and losing time by not having his wall filled with young ones. With Mr. Mearns, it is a different thing, his way of training, I think objectionable in many respects. By his inverse mode of training upon walls, it would seem to be his maxim to stunt, and retard nature in her supplies, that she may be more liberal to him in return, a thing not to be expected. I send you a sketch of a low standard peach tree, and I leave it for you and your readers to judge, whether they would expect the greatest benefits from such a one, or from one trained after his peacock tail manner. Instead of pinching, I would let them extend to their utmost length, for which purpose, trees trained in the elliptical manner, shown Fig. 117, are well adapted.

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If they grow too luxuriantly, they can easily be stopped, by allowing a superabundant crop of fruit to remain, which is the best method of checking them. Under Mr. Mearns's system, the trees will soon be worn out, whereas, if trained after the elliptical method, with judicious cutting and nailing, they may be made to possess the same form, and I have no hesitation in saying, to flourish for half a century. Mr. Mearns will find a great difficulty in getting his stocks to the top of the wall, if it be one twelve feet high, and I think such stocks would look very unsightly, then the same objections may be made to those trained with riders. I do not think reverse training upon walls will ever be attended with any advantage, although it might be recommended for fruit trees upon the open border, with sticks bent in the ground, or trained horizontally upon low wooden lattice work. I likewise send you a sketch of a pear tree, (Fig. 118,) trained in the usual horizontal manner.

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With shoots laid in alongside of the old ones, its advantage is, that it keeps the tree in bearing from the stock to the extremity; it is an excellent plan for these sorts, which will bear upon the extremities alone. The young shoot in course of time, take the place of their predecessors, and other shoots are again brought along them, so keeping the trees in a healthy bearing state.

A JOURNEYMAN GARDENER.

ARTICLE II.

ON THE CULTIVATION OF ONIONS, IN PORTUGAL.

BY I. T.

SOME years ago I was acquainted with a Portuguese gentleman, who assured me, that the chief cause of the superiority of the Portugal onions arose from the mode of culture, and that he grew quite as good ones in his garden in this country. He promised to give me in writing, a full account of the method, but this was forgotten; I, however, recollect that he said, in that country they sow the onions in seed-beds, and always plant them out into deep drills, in which they are plentifully watered in dry weather, this not only gives them the larger size, but also renders them of a much milder flavour than those grown after the old system in England.

I. T.

ARTICLE III.

ON TRAINING PEACH AND NECTARINE TREES.

BY MR. SEYMOUR.

I FELT much surprised at the manner Mr. Harrison treated our method of training peach and nectarine trees, in his article page 529, of the *Register*; the figures there given are altogether incorrect. Fig. 91, represents a tree nearly horizontal, and as he acknowledges to have seen our trees, he must have been aware they are not so; the side branches are shown as growing from the centre seven or eight inches apart, and single; now in our trees they are only three or four inches, and all double or treble after the first year, as represented in the second volume of the *Gardeners' Magazine*, figures 79 and 80, (which were taken from correct drawings, sent to Mr. Loudon by my father;) their elevation therefore must be much greater than you have represented, as the stem will be shorter when the wall is clothed with branches. Your figure 92 shews a succession of ugly protuberances, not to be found on the trees under my father's care, although some of them are nearly thirty years old. I do not consider the method ought to be condemned, because unskilful hands do not make it answer so well as he does, for according to Mr. Harrison's own confession, the plan answers better under my father's management, than he ever saw it in other places. With re-

gard to his friend's observation :—that it answers better for peaches than nectarines, it is utterly unfounded, being completely at variance with our observations : we find little or no difficulty with any except weak trees of some of the white peaches, which are thin of wood-buds ; but this is very seldom the case with nectarines.

WM. SEYMOUR:

Palace Gardens, Bishopsthorp, near York, }
August 13th, 1832. }

ARTICLE IV.

COMPARATIVE REMARKS ON WOOD AND METAL, AS CONDUCTORS OF HEAT.

BY MR. CUR.

As “Ephébius Horticultor,” has with some warmth, criticised a letter I wrote in behalf of metallic hot-houses ; I consider it requisite to make some reply, in defence of what I there advanced. Mr. E. H. says, I ascertained, that metal and wood were equal conductors of heat, if kept well painted ; what I meant was, that wood and metal are equal conductors of the heat of the sun, or of our atmosphere, and not of water and sand ; &c. Mr. E. H. appearing to have a pretty competent knowledge of the properties of *Caloric*, must be aware of the difference of its conduction in one element, to that of another ; were he to take equal sized rods of metal and wood, both being well painted, and half covered with wax, as directed by himself, page 583, and place them in the sun-shine in an erect position, he would soon see the equallization of the conduction of *Caloric*, for the wax on the wood would melt equally as soon as that on the metal, and I conceive this to be the more proper way of trying an experiment with regard to hot-houses, for the rafters are never immersed in water or sand. Mr. E. H. says, “when I placed the pieces of wood and iron against the south wall, I made my observations on the same side I applied the heat, and if I had felt the opposite side, I should have found a great difference ; this is asserted with as much assurance as though he had been present. Now I can assure him, I felt on both sides, and found no difference ; I am also in the habit of examining wood and metal rafters every day, (half of my houses being constructed of metal,) and were there any material difference, I could not fail to have observed it. My pines were ne-

ver injured, though I have always fruited in metal roofed pits, the leaves never had what Mr. Mc. Murtrie calls a "yellow hue" when in contact with the rafters, nor was their appearance unhealthy any more than those grown under wood. Was the reason J. Sabine, Esq. did not publish the letter in the Society's transactions, which Mr. Mc. Murtrie sent him, because the opinions of the writer were considered ill founded? I one day met with the oldest gardener in Derbyshire,* who told me he had the care of one of the first metallic hot-houses that was erected, and he said, he never experienced any evil effects from them. To return to my experiment which Mr. E. H. says is founded on error; he remarks, that by my plunging the wood and iron in water, nothing else could be expected but that they would be equally heated, and the reason brought forward is, that there would be a giving and receiving of Caloric, till they were all three of an equal temperature. I beg to state, that my experiment was too accurately taken, to admit of the water being affected in any other way than by the metal and wood, the water was placed in two different cellars perfectly unconnected with each other, but both of an equal temperature with the water placed in them; the metal and wood were both immersed at the same moment, and when I examined the thermometer, the temperature of one was no higher than the other. How could there be a giving and receiving of Caloric, except what proceeded from the metal or wooden rods immersed?

Supposing, however, that metal hot-houses, when painted, were greater conductors of Caloric than wood, and the heat of the hot-houses was thereby raised, could not every evil be easily counteracted, by admitting a little more air? how then could pines, vines, or any other plants be injured by heat arising from a metallic roof. I see no reason why these structures should be brought into contempt without just cause, or my opinions ridiculed without a proper foundation, by what are called Caloric experiments.

J. CUR.

July 13th, 1832.

* Our correspondent alludes to Mr. Stafford, whose opinion will be found, page 294.

FLORICULTURE.

ARTICLE V.—ON THE CULTIVATION OF THE PLANTS,
BELONGING TO THE GENUS CITRUS.

BY R. AYRES, F. H. S.

Late Gardener to E. M. Mundy, Esq. at Shipley, in Derbyshire.

ACCORDING to my promise, I send you an account of my method of cultivating the plants belonging to the Genus Citrus. If you judge it worthy a place in your *Register*, it is at your service. Previous to describing my method of cultivating the plants, I cannot avoid observing, that in the usual management of oranges and other trees of this class in green-houses, however fine the plants, they only serve the purpose of ornament, and are otherwise useless, never producing any fruit fit for the table. This failure arises from the common practice of taking the trees out of the green-house, at the time the common green-house plants are taken out for the summer month; whereas the proper course which ought to be followed, is to keep them in the house through the whole season, and after the removal of the other plants, the oranges might receive the peculiar treatment necessary, to bring them into proper bearing. The compost I use is made as follows:—to twelve barrowsful of strong turfy loam, add six of good rotten horse dung, three of vegetable mould, and one of white sand; these must be properly incorporated for twelve months previous to using. From the experience my practice has given me, I do not think oranges and other similar trees, require much warmth in the winter months, I therefore never suffer my houses to be heated above 50 degrees by fire heat, until the end of February or beginning of March, when the trees, if in good health, will begin to show blossom, the fire heat should then be increased to 55 degrees, but the houses ought never to be heated above 65 degrees at this time by sun heat, the excess of which must be checked by the admission of air, indeed, the more air the trees have during the time of blooming, the more certain will be the crop of fruit. My trees are washed with a hand syringe about twice a week in the winter months, advantage being taken of the middle of the day for that work in cold weather; in summer they are washed every day in the morning. During the time the trees are in bloom, they require more care in

respect to watering, I therefore then use a syringe with a rose, the holes of which are so small, that they will not admit a fine needle to pass through them; clean soft water is used for all these purposes. As soon as the fruit is set, I begin to water the trees at their roots, with a sort of composition-water, made as follows:—three barrowsful of cow's dung fresh from a pasture-field, two barrowsful of fresh sheep's dung, and two pecks of quick lime, are thrown into one hogs-head of soft water; the mixture is frequently stirred for a week or ten days previous to using, and when applied to the plants, ought to be about the consistence of cream, giving more or less according to discretion, the trees having no other sort of water during the summer months. In the early part of June, the green-house plants are taken out for the summer, I then begin to force the trees by keeping the heat in the house, up as near as possible to 75 degrees, I do not consider that either citrons, oranges, lemons, or limes, can be grown fine and good with less heat. Whilst the forcing is going on, particular attention is paid to the watering above described; I also in June give the trees, (whether in *borders*, or in *tubs*, or *pots*,) a top dressing of a rich compost.

This is composed of ten parts: (a wheel-barrowful is my usual integral quantity) of strong turfy loam, seven of pigeon's dung, seven of garbage from the dog-kennel or butchers' yard, seven of sheep's dung, seven of good rotten horse dung, and ten of old vegetable mould; they must be mixed together twelve months previous to use, that time being necessary to bring the ingredients into a proper state of pulverisation.

This top dressing is of the greatest advantage in swelling the fruit, and it is done in the following manner: the earth above the roots is removed with a small hand fork, taking *care* not to disturb any part of the roots, all the loose earth is then removed clear to the roots and replaced with the compost.

As respects pruning, I do not know that regular directions can be given, but I will state in what manner my trees are pruned. Early in February they are looked over, for at that time it is apparent what wood is likely to be fruitful; and as a certain quantity of old branches are yearly cut away, I take out those that seem least promising for a crop of fruit, and so make room for the younger and more productive wood; if the trees afterwards grow very strong, the shoots are shortened according to their strength, in the same manner as peach trees. Thus the branches pruned are not only fruitful, but are retained in any shape desired; no sort of fruit trees bear the knife more patiently.

There is some nicety required in thinning and arranging the crop; when the fruit is about the size of green gage plums, it is the proper time to thin them; two fruits should never be left together, for they would neither be fine nor well formed; the quantity left to ripen, must also depend on the age and strength of the tree. The thinnings have no pulp when of the size above mentioned, and are much esteemed by the confectioner for making excellent preserves.

R. AYRES.

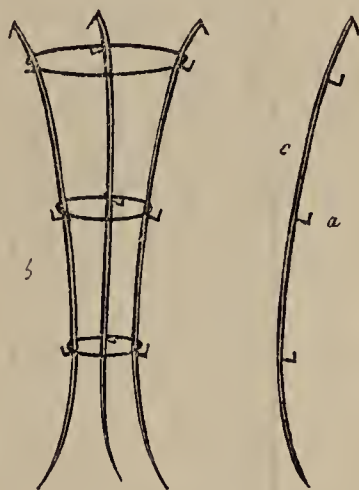
March 2nd, 1832.

ARTICLE VI.

DESCRIPTION OF A DAHLIA STAND, WITH A TABLE SHEWING THE PROBABLE EXPENSES OF ONE MADE TO ANY SIZE.—BY MR. SAUL.

HEREWITH I send you a design for a Dahlia Stand, to be made of cast-iron, (Fig. 119,) which may be obtained at a trifling expense, as it requires no labour in making after the uprights are cast. It merely consists of three half-inch up-
rights, each of which have three small
hooks (a) to support the hoops when
set as (b.) If the diameter of the
hoops, were twelve inches the top
one, eight the middle one, and five
inches the lower one, it would require
to make them about seven feet of
quarter-inch iron, this by a refer-
ence to the table will be found to
weigh about one pound, fourteen parts
of a pound, and may be bought at
three half-pence per pound. Supposing one of the uprights (c) to
be five feet long and a half-inch thick, each stand being formed of
three uprights, would make fifteen feet long of half-inch iron, by
again referring to the table, it will be found to weigh nine pounds
and eighty-one parts, which would cost about one shilling and
two-pence. Then for instance, supposing the hoops measured
in diameter eighteen inches, twelve inches, and nine inches,
these hoops would require about eleven feet long of a quarter-inch
size, which would weigh about one pound seventy-nine parts, and
would cost about two-pence half-penny. A stand this size therefore

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would cost about one shilling and four-pence half-penny. The following Table may be of some service for many other purposes in making calculations.

A TABLE OF DAHLIA STANDS.

Size of Iron.	Foot. 1	Feet. 2	Feet. 3	Feet. 4	Feet. 5	Feet. 6	Feet. 7	Feet. 8	Feet. 9	Feet. 10	Feet. 11	Feet. 12	Feet. 13	Feet. 14	Feet. 15	Feet. 16	Feet. 17
Inch. $\frac{1}{4}$	lbs. pts. .163	lbs. pts. .327	lbs. pts. .549	lbs. pts. .654	lbs. pts. .818	lbs. pts. .981	lbs. pts. 1.3	lbs. pts. 1.14	lbs. pts. 1.47	lbs. pts. 1.63	lbs. pts. 1.79	lbs. pts. 1.96	lbs. pts. 2.12	lbs. pts. 2.29	lbs. pts. 2.45	lbs. pts. 2.61	lbs. pts. 2.78
$\frac{3}{8}$.368	.736	1.1	1.47	1.84	2.2	2.57	2.94	3.31	3.68	4.04	4.41	4.78	5.15	5.52	5.89	6.25
$\frac{1}{2}$.654	1.3	1.96	2.61	3.27	3.92	4.58	5.23	5.89	6.54	7.19	7.85	8.5	9.16	9.81	10.47	11.12
$\frac{5}{8}$	1.02	2.4	3.06	4.08	5.1	6.12	7.14	8.16	9.18	10.2	11.22	12.24	13.26	14.28	15.3	16.32	17.34
$\frac{3}{4}$	1.47	2.94	4.41	5.88	7.35	8.82	10.29	11.76	13.23	14.7	16.17	17.64	19.11	20.58	22.05	23.52	24.99
$\frac{7}{8}$	2.	4.	6.	8.	10.	12.	14.	16.	18.	20.	22.	24.	26.	28.	30.	32.	34.
1 In.	2.61	5.22	7.83	10.44	13.05	15.66	17.66	20.88	23.49	26.1	28.71	31.32	33.93	36.54	39.15	41.76	44.37

ARTICLE VII.

ON PLANTING THE SA'LVIA SPLE'NDENS IN THE OPEN BORDER,
OR ON LAWNS.—BY MR. G. BEDELL.

ON reading in your publication, an article on the Cultivation of the *Sálvia spléndens*, I regretted that your correspondent had not gone a little farther on the subject, by noticing the beautiful effect produced by training it with one stem only. The method of producing a tall stem with a fine head, already appears in your *Magazine* in the directions for the Cultivation of the *Fuschia*, and therefore needs no further notice here, than that the same method must be observed. The cuttings intended for standards should be struck in the summer months, and kept growing during the winter, and as soon as a clean stem of about five or six feet in height is obtained, (which may be, probably by the end of May or middle of June,) they may be planted out. A Lawn is, in my opinion, the situation in which they appear to the greatest advantage, a portion of the turf should be taken up and replaced as soon as the *Sálvia* is planted.—They may remain in the ground till the end of October should the weather prove mild, when they must be re-potted and wintered in the green-house, or any other place secure from frost until the next season.

Most of the *Sálvias* grow and flower much stronger when planted in the open ground, than in the green-house, and the usual Spring struck Cuttings, planted in the border and shrubbery in May, will make a fine appearance in the autumn; these may be left in the ground, as, if the weather proves mild, they will continue to bloom through the whole of December.

G. BEDELL.

Grange Road, Bermondsey, July 14th, 1832.

ARTICLE VIII.

ON THE PROPAGATION OF THE POLY'GALA SPECIO'SA, AND
SALVIA SPLENDENS.—BY MR. T. HEARY.

ON perusing the seventh Number of your *Register*, (to which I am a subscriber,) I find in your Extracts from Mr. Mc. Intosh's *Flora and Pomona*, a hint on the propagation of the *Polygala speciosa*, to which I beg to add a mode I invariably found successful. I bind down about four inches of the top of the young shoots, and leave

them hanging for about three weeks, when they will begin to form callosities, I then cut them off and pot them out singly in small pots filled with light maiden mould, and one quarter of peat, placing them in a shady situation in the green-house, and giving them occasionally a little water. The reason I would prefer this mode is, that by striking a number of cuttings in one pot they make so very few fibres, and those so fleshy and brittle that they are liable to be lost in the potting.

I beg also to add to Sage's treatise on the *Salvia splendens*, page 438, that I have them in flower the year round, by potting out the cutting singly into small pots, and treating them in every respect, as Mr. G. Harrison does his *Pelargoniums*, a system to be very much approved of; see page 102, except that the *Salvia* requires more heat. I also strike these cuttings very freely in water, along with the *Nerium splendens*, *Asclepias* (*Hoya*) *carnosa*, *Lobelia dentata*, with many others.

I fully agree with Mr. Mearns's ideas on the management of plum trees, as I partially follow the same treatment; the only precaution to be used is, not to thin the tree too much, least the shoots should grow too vigorous.

Should these hints be deemed worthy of your notice, I shall feel pleasure in following them up, with such other observations of interest as may come before me.

I wish your *Register* every success, and a more extended circulation among my brother gardeners, on this side the channel.

THOS. HEARY.

Roebuck House, near Dublin, June 1832.

ARTICLE IX.

ON THE CULTURE OF THE BLE'TIA TANKERVILLIÆ.

BY A GARDENER.

BEING possessed of a plant of the *Blëtia Tankervilliæ* which showed no inclination to flower, I concluded the soil in which it was potted, being of a very binding nature, was unsuitable for it; I therefore mixed some good rotten leaf-mould, with an equal part of peat earth, and after dividing the offsets, I put them in half peck pots; this was done a year ago last June, they flowered very fine last February and March. I covered the surface of the soil in which they grew with moss, this is now very full of fine roots; the pots were well drained with broken potsherds, and were placed along the curb stones in the pinery and vinery.

A GARDENER.

ARTICLE X.

CULTURE OF THE NATURAL ORDER AMARYLLIDÆ.

BY ARTHUR.

(Continued from page 696.)

11. PHYCE'LLA, (*phykos*, red alkanet, colour of flowers.) The *P. ignea* and *cyrtanthoides* will thrive in any light rich mould, and should be treated as other half-hardy bulbs; *P. corúsca* and *Herbertiana* require the heat of the green-house, and grow best if potted in a considerable portion of sandy peat, and the bulb of the latter should be planted pretty deep in the soil; in respect to watering, &c. they must be treated like the Amaryllis.

12. Vallôta, (*Pierre Vallet*, a French Botanist.) This genus contains but one species, of which there are two varieties cultivated in our gardens; although introduced from the Cape of Good Hope, they both require the heat of the stove, and should be potted in sandy peat, mixed with equal parts of turfy loam; their general treatment is like the Amaryllis.

13. Griffi'nia, (Wm. Griffin, Esq. of South Lambert, by whom the three species were introduced.) These species resemble Amaryllis, but have stalks to their leaves, and bear blue flowers. The *G. hyacinthina* and *parviflora* do well if potted in any rich mould, providing it be not very heavy, if it is, mix about one-third of white sand, and beat them well together, but do not sift them; the *G. intermedia*, requires a considerable portion of sand and peat mixing with the loam; set them in an airy part of the stove, and be careful not to give them any water when in a dormant state, but let them be well supplied when they begin to grow or show bloom; they occasionally produce ripe seeds, but are generally propagated by offsets.

14. Sternbérgia, (*Count Casper Sternberg*, a celeb. bot.) All the species of this genus are perfectly hardy, and will do well in any light rich mould; care however must be taken not to plant the bulbs too deep, or they are liable to perish in wet seasons, they are readily increased by offsets and seeds, which they produce pretty freely in fine seasons.

15. Zephyránthes, (*Zephyros*, west wind, *anthe*, flower.) The *Z. cándida*, *atamásko*, and *chloroleuca*, thrive well in common rich mould, and may be treated as other half-hardy bulbs; the *Z. tubispatha* and *ròsea*, will grow in the same soil, but require the heat of

the green-house; all the other species must be potted in very sandy loam, with a small portion of peat and leaf-mould, and placed like the two last in the green-house. The *Z. candida* closes its flowers in the evening, or if placed in the shade, after the manner of the crocus.

16. *Habránthus*, (*Habros* delicate, *anthos* flower.) All the flowers of this genus are very delicate, the *H. versicolor* and *gracilifòrmis* very fragrant, they may be planted out in light rich mould, on any warm border, and if covered in severe or very wet weather in winter, with an inverted flower pot, the bulbs will be preserved from perishing, and will flower very freely; the *H. bifidus*, *ròsea*, *Bagnóldi*, and *Phycelloídes*, will all thrive well if planted in a border, in the front of a stove or green-house; let the bulbs be well covered in winter, to keep them from being injured by frost or wet: the *H. Andersòni*, *lorifòlius*, *angústus*, and *spatháceus*, all require the green-house, and should be treated exactly like the *Amary'llis*, and other green-house bulbs in this order. They are all increased by offsets, and occasionally by seeds, which, however they very seldom ripen.

17. *Doryánthes*, (*Dory*, spear, *anthe*, flower; stem.) This genus contains but one species, the *D. excélsa*, it differs materially from all the preceding genera, the flower stem growing to upwards of twenty feet high, it grows freely in a mixture of sandy loam, peat, and well rotted leaf-mould, and should be placed in the conservatory. It may be increased by suckers from the roots, which are sparingly produced.

18. *Gethy'llis*, (*Getheo* to rejoice; perfume of flowers.) All the species are green-house plants, natives of the Cape, and should be potted in sandy loam and peat, "the berries of the *G. afra* are said to be eatable, having an agreeable odour," they require the usual treatment with regard to watering, &c. as the other Cape *Amaryllidæ*; they are increased by offsets and seeds.

19. *Alstræmèria*, (*Baron C. Alstræmer*, a Swed. Bot.) The roots of all the species of this splendid genus, abound in a nutritive *fæcula* which may be prepared for food, the natives of Chili obtain from the roots of one of the species, a substance resembling arrow-root. They will thrive if planted in a mixture of about equal parts of rich loam, sand, and leaf-mould. *A hirtélla*, and *ovàta*, do very well on a warm border, and the former will ripen seeds very freely, which as soon as ripe should be gathered and sown in pots, and the young plants turned into the borders in the following spring. Although the *Flos Martini*, *pulchélla* or *Hookeri*, *Simsii*, *Salsilla*, &c.

&c. have been treated as stove plants, they grow much stronger, and flower much finer in the open border, and endure our winters pretty well with but a slight covering in very severe weather. A *ligtu* is often very shy at flowering, this may be easily remedied by observing the rules laid down by Mr. Sweet in his *Bot. Cult.* p. 16, he says, A *ligtu* "will blossom freely, by letting the pots be dry for a considerable time, till the shoots are all dried up; then fresh pot them, give a good watering, and put them in a moist heat. Mr. Lindley says, "the safest way to treat (all) the species, is to plant them in light loamy soil, in a border within a glazed pit, which is just heated enough to keep out frost in winter. Here they will grow with great vigour, throwing up strong suckers in all directions, and flowering beautifully: their leaves will not, on the one hand, be parched by the drying cold winds of April, nor, on the other, scorched by the sun at Midsummer. Thus protected they will perform all their natural functions as if in their native soil: and an abundance of food will be sent downwards into the roots, which will be thus prepared, upon the return of the growing season, to send up new shoots with the greatest vigour." *Bot. Reg.* 1410.

ARTHUR.

ARTICLE XI.

PRESERVATION OF PLANTS, &c. ON A SEA VOYAGE.

THE chests in which plants are sent from the Botanic Garden Calcutta, to Europe, or other distant parts of the world, are made of strong materials, and fitted out in such a manner, with moveable railed frames and covers, as to admit of their being easily sheltered from the access of sea-water, wind, and rain. Besides a number of plants placed in them and fastened to their sides, the earth is generally mixed with a considerable proportion of seeds, calculated to germinate successively during the progress of the voyage, and thus to enhance the value of these collections. The chance, however, of their arriving safely at their destination, rests almost entirely on the commander of the ship on which they are proceeding, and on the person who is so good as to undertake the immediate charge of them on the voyage, directing their kind solicitude towards protecting the plants from the least contact of salt-water, from injury being done

by vermin, poultry, &c. and from the habit which idle people sometimes indulge in, of breaking or pulling the leaves, branches, or flowers. Where such a favourable disposition exists, a strict attention to the following rules will ensure a complete success, and the greatest proportion of the plants will arrive at their destination, in a thriving and vigorous condition.

1. It is proper to keep the chests uncovered the greatest part of the day in fair or moderate weather, particularly during gentle rains, or if these should be heavy, or of long continuance, until the plants have been sufficiently refreshed. In very hot weather their lids must be alternately shut up. It is extremely important that the chests should remain open at night also, and this rule ought always to be attended to in fair weather, provided that the plants are not thereby exposed to the attacks of rats and mice, &c.

2. It is obvious, that the plants require to be watered frequently, but at the same time it must be observed, that too much moisture would do as much harm, as too little would; the safest plan is this: to give them water only when it is found that they stand in need of it, and the best time for so doing is the evening. The quantity must in a great measure be regulated by the state of the weather, though not exclusively. They want much less in a cold than in a hot climate. If care is taken to keep the chests shut up during the hottest part of the day, less water will be requisite, than otherwise. Whenever the leaves and branches look drooping and relaxed, especially towards the evening, (for in hot climates they will generally appear in that state in the middle of the day,) and if the earth appears dry, it is a sign that a little water is necessary; and the best mode of applying it is, to pour or sprinkle it over them in such a manner, that the branches and leaves, as well as the earth, may become gently moistened. It ought to be a general rule, never to let the plants get water oftener than once a day, and not to give any at all, if the earth appears quite wet.

3. Directions where to place the chests to the greatest advantage, depend on the size and accommodations of the ship, and can only be given in a general manner by observing, that they should be sheltered from strong winds and burning sunshine, as far above the reach of the sea, as is compatible with the care and vigilance, which they require; and that day-light, as well as a free circulation of air, are indispensably necessary for the preservation of the plants. The Poop, above or near the entrance to the cabin, answers generally best. The importance of preventing salt-water from reaching the plants, has been repeatedly hinted at above: indeed too much pre-

caution cannot be taken with respect to it, as the least accident from that source generally proves fatal, unless recourse is directly had to washing the leaves or branches, which have suffered, with a wet sponge or a soft piece of linen. When the seamen are cleaning the decks the danger is greatest, for it is difficult to prevent them from dashing the sea-water against the chests, when some part of it in all probability will reach the plants. As an additional guard against this danger, a tarpawlin might be thrown over them while shut up, which would also be of use in stormy and bad weather. Raising the chests to some height above the surface of the decks, might also be of great use.

4. Chests of roots, and parcels or boxes of seeds should be put in a dry and cool place of the ship, where the air is constantly circulating and renewed; the latter may advantageously be hung up under the roof of a cabin, or put in a trunk among books or clothes; and it would materially contribute to their preservation, if they were put out, occasionally, in the open air, especially if the least sign of dampness should be visible on them. Placing such packages of roots or seeds in the ship's hold, or shutting them up in chests or places, likely to become hot, damp or wet, would infallibly prove destructive to their vegetable principle, and kill them in a very short time.

ARTICLE XII.

TREATMENT OF THE MAURA'NDIA BARCLAY'ANA, &c.

BY J. M.

To "G. L." during last winter, I had the *Maurándia Barclayàna*, and *Verbena Melindres*, in a cold frame, which was covered during frost, with mats. The bottom on which the pots stood, was covered with slates, and the plants kept rather moist. The *Maurándia* should be renewed every year, either by cuttings, (which strike roots freely, if planted in sand under a bell-glass) or seeds. The *Còbea* should be cut in, a little before the buds are excited. The *Verbena pulchèlla*, *V Aublètia*, *Fuchsia cónica*, *Calceolària arachnòidea*, and *Lophospermum crubescens*, survived the winter, in a healthy state, in the same frame with the above.

J.M.

Penwortham, Lancashire, }
 July 7th, 1832. }

ARTICLE XIII.

TREATMENT OF THE ALOYSIA CITRIODORA.

BY A SUBSCRIBER.

IF your correspondent is not tired out with the many answers to his queries, respecting the best means of preserving the Verbena or Lemon-plant from frost, I can bear testimony to its hardiness; when I resided at Oxford, we had two very beautiful plants, fully twelve feet high, and proportionably stout in the stem, on either side of the parlour window; the only defence they received was from a covering of hay and close matting, till about April, when the gardener removed the weakly shoots of the former year, and new wood was thrown out in abundance, inviting every passer-by to pluck a shoot, the fragrance thrown into the room was delightful.

A SUBSCRIBER.

Amersham, Buckinghamshire, }
August 17th, 1832. }

ARBORICULTURE.

ARTICLE XIV.—ON THE MANAGEMENT OF PLANTATIONS.

BY AN ARBORIST.

IN managing plantations, the object is to give at the same time a due proportion of shelter and air.—In many cases, plantations which have been well attended to, in respect of inclosing, draining, and properly planting, have thriven well for the first twelve or fifteen years; yet in fifteen years more, the forest trees have been ruined by allowing the scotch fir and larch, which had been judiciously planted for shelter, to remain for twenty-five or thirty years. The oak, ash, and sycamore have been partly destroyed, and what remains, is, for *want of air*, so drawn up, and left in such a debilitated state, that, though their oppressors be at length removed, they cannot support themselves, and the few that can stand, from *the sudden transition* which they have undergone, immediately *stagnate*, and become overgrown with *moss*.

Too great a partiality for trees, often occasions an error, which defeats the object of the planter and improver. It is as necessary to *thin* and *prune* trees *every year*, as to plant them with care and

judgment; and yet it too often happens, that those who are extremely fond of planting, cannot reconcile to their taste and judgment, to *cut away trees*, or even the *large and strong branches* that absolutely injure their plantations, and eventually defeat their progressive improvement. Surely no person can dispute, that a grove or plantation consisting of trees, furnished with *proper branches* and rich foliage, is not a more pleasing and beautiful object, than if such trees presented an unsightly appearance of half dead, and feeble stems; nor is it to be supposed, that trees crowded together, and robbing each other of support, and of the invigorating powers of the sun and air, can arrive at a profitable growth. It is more absurd to be tenacious of *cutting away*, and *pruning young trees* when necessary, than it is reprehensible not to plant them, when it may be done with advantage. Trees do not, like animals, wear out their organs, for they are provided with new ones every year; no necessary cause of death therefore, is inherent in their nature. The vessels and fibres forming the external layer, which add every year to the circumference of the stem, where the life of the plant principally resides are wholly new, and so unconnected with the layers of preceding years, that the latter may be removed by hollowing out without killing the tree. The concentric circles observable on the transverse section of the stem of a tree, mark successive generations. As every concentric circle on the stem is a new generation, so is every bud on the branches a new-born child, every twig, a family, and the tree a nation; and trees like nations, (olive trees especially) may be said to live *semper!* their death, in fact, is an accident; there are indeed, living olive trees on record, known to have flourished ten centuries ago, and which were planted by the Romans. The shell of an olive tree is as picturesque as the foliage (which resembles that of a sick willow) is otherwise.

AN ARBORIST.

The Vale of Clwydd.

ARTICLE XV.

LIGHTENING.—NON-CONDUCTING PROPERTY OF THE BEECH TREE.—BY OMEGA.

INSTANCES of loss of life by lightening, arising from the circumstance of persons imprudently taking shelter under trees from rain, during thunder storms, are not of rare occurrence; this is not surprising, as trees are, more or less, subject to be attacked by the elec-

tric fluid, especially the various species of the *Oak*. The beech tree (*Fagus sylvatica*) presents, however, an exception in a most remarkable degree, from the effects of this dangerous element. I am the more positive in advancing this assertion, as I have not been able to trace a single instance of the beech tree, having ever been struck by lightening, in this or any other climate.

OMEGA.

August 25th, 1832.

ARTICLE XVI.

SPEECH FROM A TREE.—BY A DRUID.

A **PRODIGAL**, who was left by his father in possession of a large estate, well conditioned, impaired it by extravagance. He wanted money, and ordered a number of timber trees, near the mansion, to be felled for sale; he stood by to direct the labourers, when suddenly a hollow murmuring was heard within the trunk of a venerable Oak! and after several groans, a voice from the tree distinctly said:—“My young master, your grandfather, planted me when he was about your age, for the use of his posterity; I am the most ancient tree in your forest, and have largely contributed by my products to people it; there is therefore some respect due to my services, if none to my years: I cannot well remember your great-grandfather, but I recollect the favour of your grandfather, and your father was not neglectful of me:—my shade assisted his rest, when he was fatigued by the sultry heat, and these arms have sheltered him from sudden showers:—you were his darling, and if the wrinkles of age have not obliterated them, you may see your name traced in several places by his own hand in my trunk:—I could perish without regret, if my fall would do you any real service:—were I destined to repair your mansion, or your tenants’ ploughs and carts, and the like, I should fulfil the end for which I exist; to be useful to my owner:—But to be trucked away for vile gold, to satisfy the demands of honourable cheats, and be rendered subservient to profligate luxury, is more than a tree of my spirit can bear:—your ancestors never thought you would make havoc and waste of the woods they planted:—while they lived, it was a pleasure to be a tree; the old ones amongst us were honoured, and the young were encouraged around us. Now we must all fall without distinction, and in a short time, the birds will not find a branch to build or roost upon: yet, why should we

complain? almost all our farms have followed you to London or Paris, and of course, we must take the same journey.

An old tree loves to prate, and you will excuse me if I have been too free with my tongue: I hope advice from an oak may make more impression upon you than the representation of your steward. My ancestors of Dodona were often consulted, and why should a British tree be denied liberty of speech? but you are tired, you wish me to remain dumb: I will not detain you, though you will have too much reason to remember me when I am gone: I only beg, if I must fall, that you will send me to one of his Majesty's Dock yards, where my *firmness* and integrity may be employed in the service of my country; while you, who are a slave to your wants, only live to enslave it."

The Prodigal could bear no more; he ordered the oak to be dispatched, and the venerable tree fell without a groan.

A DRUID.

Alvanley, near Frodsham.

NATURAL HISTORY.

ARTICLE XVII.

ON THE SCIENCE OF BOTANY AS A NECESSARY STUDY, FOR YOUNG GARDENERS.

BY F. F. ASHFORD,

Under Gardener at R. Wilbraham's, Esq. Rode Hall.

THE study of the Vegetable Kingdom is one of the most pleasing employments the mind of man is capable of enjoying, contemplating nature in all the various seasons of the year, climbing the mountain or descending the vale, in the forest, or in the mead, from the oak whose majestic boughs tower toward the skies, to the moss whose minute stem sports beneath its shade, every where there is something to amuse, in every thing something to instruct, something to aid us,

To look through nature up to nature's God.

Surely he must be an unconscious observer, who does not discover in every step

The work of an Almighty hand.

The study of Botany being a great acquisition to the scientific knowledge of the young gardener; it is my intention in this and fol-

lowing communications, to give your juvenile readers a succinct review of the Linnean Sexual system of Botany. It is natural to suppose the first questions that may arise in the mind of the young Tyro are these, what is Botany, and what does it treat of? the answer is short.

Botany is that science which arranges and distinguishes all plants or vegetables, and teaches us their peculiar properties and uses. The Vegetable Kingdom is extremely numerous. Naturalists enumerate 30,000 species of plants, nor will this number be so very surprising, when we consider, that the whole surface of the earth is covered with them, about 2000 of these are natives of our own Isle, of which one-third are mosses, ferns, sea-weeds, &c. but more botanically speaking Cryptogamic Plants.

The honour of having first suggested the true sexual distinction in plants, appears to be due to our own countryman Sir Thomas Millington, from whose hints Dr. Grew, as he himself acknowledges, was led to the observations he has given on this subject, in his anatomy of plants, page 171, published in the year 1682. After this, Camerarius, Moreland, Geoffroy, Vaillant, Blair, Jussieu, and Bradley, pursued their inquiries and experiments, so far as to remove all doubt concerning these discoveries: and lastly, though not least, Dr. Linneus, the professor of physic and botany, at Upsal, (a considerable town in Sweden, and noted for its University,) founded his immortal system.

As it has been justly observed by the best writers, that every person who wishes to become a professed botanist, should preserve and form into a collection, the plants which he has examined; therefore it is my intention, before proceeding with the science under consideration, to offer a few instructions to the young botanical researches, concerning the forming and arranging an Hortus Siccus (Hortus a garden; Siccus to dry. Lat.) or Herbarium.

The first thing required, is a botanical press, made of two small boards of hard wood, about eighteen inches long, twelve inches broad, and two inches thick, with screws fixed to each corner by nuts. Next, some sheets of brown and unsized blotting-paper must be provided for drying. The specimens must be gathered when quite dry, and if collected at a distance, they must be carefully carried home in a tin box with their names affixed to them, to assist the memory; the specimens must be taken out of the box as soon as possible, and carefully spread on a sheet of brown paper, with the leaves and petals laid out regular, and another sheet of paper laid over them, and so on till the press is full; then screw them down,

increasing the pressure every day ; they must remain till quite dry, supplying them with dry paper every day. The best way for drying Succulent and mucilaginous plants, such as Cactus, Epiphyllum, Cereus, Melocactus, &c. is with a hot smoothing-iron, the specimens placed between sheets of the blotting-paper, and ironed till they become sufficiently dry.

When properly dried, the specimens should be arranged into general classes and orders, (which will be hereafter explained) and fastened in a book, provided for the purpose, with small slips of green paper ; then at the base of the specimen, should be written down the name of the genus and species, its native country, time of introduction, (if of foreign produce,) nature of the soil, colour of the flower, and time of flowering.

F. F. ASHFORD.

Rode Hall, Cheshire, July 10th, 1832.

ARTICLE XVIII.

ON THE STUDY OF ENTOMOLOGY.—BY RUSTICUS.

(Continued from page 654.)

Subsection 3rd—SERRIC'ORNES ; Sternóxi Lat. With filiform Antennæ.

Family XXXII.—BUPRESTIDÆ ; Cow-burners, 5 Genera.

- | | |
|-------------|--------------------------|
| 1 Buprestis | 3 Aphanisticus |
| 2 Agrilus | 4 Tráchys 5 Melàsis |

Most of the species of this family are very rich, resplendent, and beautiful in their colours, they are all timber-eating insects, and often prove very destructive from the long period they continue in a larva state. Marshman tells us in the Lin. Trans. X. that the grub of the *B. splendens* was ascertained to exist in the wood of a deal table, more than 20 years. The *B. flavomaculata* is very elegant, and far from being uncommon in sandy soils, where timber has begun to rot ; its head enters within the thorax, and the Elytra (wing-cases) are each adorned with four, and occasionally five spots of a bright yellow colour : the upper side of the abdomen is bright blue.

Family XXXIII.—ELATE'RIDÆ ; Clickers, Skippers, &c. 12 Genera.

- | | | |
|----------------|---|--------------------------|
| 1 Ceratophytum | 5 { Unnamed by Mr.
Stephen's but pla-
ced by Mr. Curtis }
6 { undergenuselàtor } | 9 { Unnamed by Mr. |
| 2 Eucnèmis | | 10 { Stephen's, but pla- |
| 3 Hemírhypus | | 11 { ced by Mr. C. un- |
| 4 Elàter | | 12 Campylis |
| | 7 Lùdius | |
| | 8 Cleniòcerus | |

The insects of this family are chiefly distinguished by an elastic spine, which springs from the under side of the thorax, near the extremity. By means of this when the animals are turned upon their backs, they jump into the air with a clicking noise, and are able when they fall to recover their proper position. The *Hemirhipus lineatus*, and *H. obscurus*, both produce the well known wire-worms

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which often make such devastation in our corn-fields and gardens. They continue in the larva state five years, during which time they feed on the roots of oats, wheat, and most sorts of grain, as also potatoes carrots, salads, &c. They are exceedingly destructive in newly made gardens, for several years

taking off almost every crop both of vegetables or flowers. Many means have been adopted to eradicate them, some of which have proved successful. The best way appears to be that of alluring them by baits of different kinds. This was first suggested by Sir Joseph Banks, and has now become pretty generally adopted; the plan is this when the insects abound: bury an inch or two under the surface of the soil, where crops are sown or planted, slices either of potatoes, turnips, parsneps, apples, or carrots, sticking a wooden skewer in each slice to take it out easily when required, as well as to shew where the bait is buried; these are to be regularly examined every day, or at furthest every other day, and the insects upon them killed. Some gardeners have given preference to sliced beet root, or cabbage stumps, and others think young lettuce plants attract them most, whichever is used there must be no neglect in examining and destroying the worms on them. Mr. Tallant, of little Houghton, a great agriculturalist, found that by sowing land with a crop of white mustard seed, previous to fallowing for wheat, the ground was quite cleared of them, the reason might probably arise from the incapability of the insect to feed on the root of the mustard, on account of its acid qualities, and by keeping the land clear of weeds or any thing else they could eat, they would die of starvation. After five years they go into a pupa state, (b) and shortly appear as a chesnut coloured beetle, (c) when their existence seems to be very limited.

Subsection 4th—*Serricornis*: *Malacodermi*, *Xylophagi*; Lat. with *Setaceous*, or abruptly *Clavate Antennæ*.

Family XXXIV.—*Cebrionidæ*?—1 Genus *ATOPA*.

Family XXXV.—Cyphonidæ.—2 Genera.

1 Scirtes 2 Cyphon

Family XXXVI.—Lampyridæ.—2 Genera.

1 Lámpyris 2 Lycus

The common glow-worm, (*Lámpyris noctilùca*) is the most conspicuous and best known of this family. The female in her perfect state, is destitute of the least vestige of wings, (Fig. 121,) whilst the

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the male (b) is a perfect beetle, the light proceeds from a pale coloured patch, that terminates the under side of the abdomen. The general opinion was that the males emitted no light, but this has been found inaccurate, although it is very faint compared with that of the female. I have read that the males of the *L. splendidula*, shew their light very conspicuous, but have never yet seen

them, or met with any person, who has captured a specimen in this country. Both male and female of our common glow-worm appear capable of concealing and extinguishing their light at pleasure. I met with a female specimen a few evenings ago, which I brought home with me, and it showed no disposition to hide its light at that time, but although it lay amongst plenty of grass, I could not observe it shine again for several days afterwards, when it appeared as brilliant as ever.

Family XXXVII.—Telephóridæ; Soft-wings, Soldiers, Sailors—
2 Genera.

1 Telephorus 2 Malthinus

Family XXXVIII.—Melyridæ.—4 Genera.

1 Malachus 2 Elicopis 3 Dasytes
4 Drilus

Family XXXIX.—Tillidæ.—6 Genera.

1 Tillus 3 Clérus 5 Opilus
2 Thanásimus 4 Necròbia 6 Corynètes

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The *Thanásimus formicarius* (fig 122) (a) is said to destroy the *Anobium pertinax* (fig. 59, page 375.) which is very destructive to furniture, &c. It may be found in Scotch and Spruce Firs that have been recently felled, it runs very nimbly, and has been named *formicarius* from its resemblance in

form and manners to an ant. The larva lives under the bark of decaying trees.—*Curt. Ent.*

Family LX.—Ptinidæ.—10 Genera,

1 Xiletinus	4 Mèzium	7 Anobium
2 Ptilinus	5 Gibbium	8 Ochina ?
3 Ptinus	6 Dorcatoma	9 Choragus
		10 Ciss

The most remarkable insects in this family are those of the chair-eaters (Ptinus) these are of a diminutive size, but very destructive. They perforate indiscriminatively household furniture, clothes, furs, dried animals, in a state of preservation, and most other articles not even refusing tobacco, when caught they counterfeit death with much adroitness, and scarcely any means except the application of heat can arouse them. Also that great cause of terror to the superstitious, the death-watch, (*Anobium tessellatum*) may be heard making its *ominous* click both in the tables, chairs, picture, or looking-glass frames, bed-posts, or even the floor, where in very old houses it exists by thousands. Perhaps all the species of this genus click also. *A. pertinax* (fig. 59, p. 375) and *A. striatum*, may occasionally be met with in small quantities, but are not so common as the *tessellatum*. They have rather a depraved appetite, for although they are considered timber eaters, they will eat many filthy substances. Mr. Sheppard found the *A. paniceum* feeding upon dried blistering flies, (*Cantharis vesicatoria*.) These like the *Ptinus*, will counterfeit death when in danger, particularly the *A. pertinax*, which will endure any tortures without moving. All the British species of the genus *Cis*, inhabit *Boleti*, as well as old wood. The *C. Boleti* is a very common insect, and may be found from February to August in the *Bolëtus véricolor*, and under the bark of trees: the *C. bidentatus* (fig. 122) (b) may be occasionally found on the white thorn (*Cratægus Oxyacantha*) in June and July.

To be Continued.

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, ESQ. F. R. S., &c.—2s.

It has been long remarked, that “a great book is a great evil;” and applied to the prevailing practice of spinning out to an amazing length, almost every threadbare subject; it is perhaps substantially correct. The author, however, in the formation of the present work, will not have to apologize for the commission of this evil; if there is any fault, it is on the contrary side, of not being extended enough; be that as it may, we have no hesitation in saying, that of all works on the science of Horticulture, this has by far afforded us the greatest satisfaction: and we are convinced, that every attentive reader of it, will join with us, to pronounce it the best work of the kind that has ever yet appeared. The Author very judiciously remarks in his Introduction to the “Orchard and Kitchen Garden Guide.” Reviewed p. 110 and 160, that “in all books upon Gardening, a great variety of modes of operating are comprehended, each of which has, it may be supposed, its own peculiar merit under particular circumstances. In several, the very same mode is repeatedly recommended with slight variations of phraseology, in speaking of many different subjects; and it has at last become a common complaint, among those who seek for information from books upon horticultural subjects, that they can find plenty of rules of action, but very few reasons.” This appears to us perfectly correct; and although the cause to intelligent men has long been very obvious, all have shrunk from the weighty “task” of reducing “the physiological principles, upon which the operations of Horticulture depend for their success, to a series of simple laws, that could be readily borne in mind by those who might not be willing to occupy themselves with the study, in detail of the complicated phænomena of vegetable life. The im-

portance of these laws is so great, that there is not a single practice of the gardener, farmer, or the forester; the reason of which, if it relates to the Vegetable Kingdom, can be understood without a knowledge of them."

All Works previously written to assist the enquiring mind of the Horticulturalist, were in such voluminous shapes, that no small portion of patience and attention was required to come to any rational conclusion, and many speculative theories were blended with discovered facts, that a good previous knowledge of the subject was indispensable, to be able to discriminate betwixt right and wrong. Mr. Lindley has completely obviated all these difficulties, by issuing so competent a work on the subject, we think we may call it a perfect one, for we know not what more could have been added to render it more complete; it may be said to be a key, to unlock the whole science of gardening, and the whole is so condensed, that every gardener may carry the book (as he would the key of his hot-houses) in his pocket. We certainly should recommend every gardener, both young and old, as well as every lover of gardens to purchase it, as they cannot fail, from the plain and explicit manner in which it is written, to derive immense benefit by its perusal, for "there can be but little mental interest in watching the success of operations, of which the reasons are unknown, compared with that which must be felt when all the phænomena attendant upon practice can be foreseen, their results anticipated, or the causes of failure exactly appreciated."

"It must also be manifest, that however skilful any person may become by mere force of habit, and by following certain prescribed rules, which experience has, or seems to have sanctioned; yet that much more success might be expected, if he acted upon certain fixed principles, the truth of which has been well ascertained, instead of following empyrical prescriptions, the reason of which he cannot understand."

"It is not, however, to be understood from this last observation, that rules of cultivation are to be neglected, because they cannot be physiologically explained. On the contrary, the mere fact of a given mode of culture, having been followed for a length of time, by persons deeply interested in the success of their operations, and of much experience, ought to give it very great authority; for it is well known, that there are many important facts, the reason of which is either extremely obscure, or altogether unintelligible. This may be owing either to the defective state of our knowledge, of the exact nature of many of the phænomena of life, or to the great difficulty of

appreciating every circumstance connected with the fact in question, or to constitutional peculiarities in particular species, which, like animal idiosyncrasy, form exceptions to the ordinary laws of nature, and baffle all philosophy.

The propositions are upon the same plan as those of an elementary work on Botany, entitled "an outline of the first principles of Botany," which was originally drawn up for the use of the Botanical class in the university of London, which, from its having reached a second edition in this country—translated into French and German, and republished in North America, may be supposed to have answered the purpose for which it was intended, that of "reducing the first principles of botany to their simplest form." A similar object has here also been kept in view; the author's intention not having been to write a book on the Philosophy of Horticulture, but simply to point out in the briefest manner, consistent with clearness, what the fundamental principles of that philosophy have been ascertained to be. The application of these principles has been in all cases, very concise; but there will be no disadvantage if the work acts as an exercise of the reasoning powers, as well as a guide to practice.

The plan of its arrangement ought by no means to be lost sight of, being every way calculated to assist the reader to retain in his memory what he has read. It consists of 369 propositions explaining the different phenomena of the vegetable creation, placed under fifteen heads or chapters, treating first, on the general nature of plants; second, of the root; third, stem; fourth, leaf-buds; fifth, leaves; sixth, flowers; seventh, sexes; eighth, fruit; ninth, seed; tenth, sap; eleventh, air and light; twelfth, perspiration; thirteenth, cuttings; fourteenth, scions; and fifteenth transplantation. The whole is brought into the small compass of *seventy-two* pages. It may perhaps, be thought that several points have been omitted, which it would have been desirable to introduce, such as the influence upon vegetation of electricity, manures, pruning, training, and the various modes of grafting. But it is possible that a little consideration may show that these subjects do not strictly come within the scope of the present work. In the first place then a distinction must be drawn between the *art* and the *science* of Horticulture; the former teaches the manner, the latter the reasons of cultivation, and it is to the latter only that these propositions apply.

Secondly, the plan of this sketch excludes every thing that is merely speculative, or that is incapable of being reduced within certain fixed principles. Electricity is a power of which we know almost nothing certain with reference to vegetation: if many things

have been written about it, it must be admitted, that very little has been proved. The same may be said of manures; the theory of their action, however, is explained. Pruning and training are a part of the *art* of cultivation, dependent upon a great variety of physiological laws; the brief explanation of which, is the object of the present work. The various modes of grafting, are also a part of the *art* of Horticulture, and are deduced from laws explained in the work.

It may not be unacceptable to our readers, if we extract a few paragraphs to shew the explicit manner in which it is written: as paragraph 3. Plants are organised bodies, consisting of masses of tissue that is permeable by fluids or gaseous matter. 5. Tissue is called *Cellular* when it is composed of minute bladders, which either approach the figure of a sphere, or are obviously some modification of it, supposed to be caused by extension or lateral compression. 7. Cellular tissue, otherwise called Parenchyma, constitutes the soft and brittle parts of plants; such as pith, pulp, the spaces between the veins of leaves, the principal part of the petals; and the like. 12. *Vascular tissue* is that in which either an elastic tough thread is generated spirally within a tube that is closed and conical at each end; or rows of cylindrical cellules, placed end to end, finally become continuous tubes by the loss of their ends. 13. The most remarkable form of vascular tissue is the *Spiral vessel*, which has the power of unrolling with elasticity when stretched. 30. The office of the root, is to absorb food in a fluid or gaseous state; and also to fix the plant in the soil, or to some firm support. 31. The latter office is essential to the certain and regular performance of the former. 32. It is not by the whole of their surface that roots absorb food; but only by their young and newly formed extremities, called *Spongioles*. 33. Hence the preservation of the spongioles in an uninjured state is essential to the removal of a plant from one place to another. 60. The more erect a stem grows, the more vigorous it is; and the more it deviates from this direction to a horizontal or pendulous position, the less it is vigorous. 92. When leaf-buds grow, they develop in three directions; the one horizontal, the other upward, and the third downward. 93. The horizontal developement is confined to the cellular system of the bark, pith, and medullary rays. 94. The upward and downward developements are confined to the woody fibre and vascular tissue. 95. In this respect they resemble seeds; from which they differ physiologically in propagating the individual, while seeds can only propagate the species.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

CULTURE OF MUSHROOMS IN MELON PITS.—About the middle of July, a bed of long and short stable dung (fresh from the stable) which has only gone through a light course of fermentation, should be made in the pit, for the two-fold purpose of raising Melons and Mushrooms; the bed is to be spawned in the usual way, about a fortnight after the melons are ridged out; for, if done earlier, it would be too hot to receive the spawn. As soon as the bed is spawned, a quantity of stiff yellow loam, mixed with a little half-decayed leaf-mould, should be laid on twelve inches thick for the melons to grow in, and gently trodden down. The melons will ripen about the end of September, and will all be gathered about the end of October; when the bed should be cleared of the old plants, and about three inches of the mould removed from the surface, thus leaving it nine inches deep for the mushrooms. The bed should then be well watered, and again at the latter end of November, but no more all the winter. The pit may then become a shelter for green-house or half-hardy plants, which may be ranged upon the bed. About the middle of February, the mushrooms will begin to make their appearance, the plants must then be removed out of the pit altogether, and plentiful crops of mushrooms will be produced till May. By this mode of culture, the thickness of the mould, and hot atmosphere of the bed, necessary for the growth of melons, will prevent the mushrooms from appearing before February. After the month of March, the bed should be shaded from the mid-day sun, and plenty of air given, and water occasionally.—*J. COLLIER.—Gard. Mag.*

ON THE VARIETIES OF THE PINE APPLE.—(Continued from page 677.)—**20. TROOPER'S HELMET.** The Cockscomb, Hussar, and broad-leaved Java of the Society's Catalogue. Leaves rather long, flat and erect, of a pale yellowish, green colour, and mealy on the under surface. Spines middle sized and regular. Flowers purple. Fruit orbicularly cylindrical, before ripening pale green and rather mealy, when ripe dark ochre, of great beauty, but not very excellent, generally weighs from three to five pounds. Pips large, flat, depressed in the centre and plaited round the margins. Scales covering half the pips, of a whitish colour, and terminating in lengthened blunt points. Flesh bright lemon colour, very juicy and high-flavoured without sweetness or brightness, rather of a coarse and stringy nature; crown large and spreading, leaves numerous:

21. GREEN PROVIDENCE. This is the Wollaton Providence and New Green Olive of the Hort. Soc. Cat. and Green Antigua, and Royal Providence of some gardens. The leaves of this sort are very distinct from all others; they are long, very broad, slightly spreading and keel-shaped at the base, tapering to a lengthened point; the upper surface is dull green with scarcely any meal, the lower surface is very mealy. Spines middle sized and regular. Flowers purple. Fruit pyramidal, broadish at the top, before ripening of a dark green, when ripe of a pale orange, slightly mealy, weighs about from three to six pounds, and is of

considerable excellence as a summer fruit; pips rather above the middle size and slightly prominent. Scales covering the pips, with long narrow pointed ends. Flesh pale yellow, opaque, slightly fibrous, sweet and pleasant without much acid. Crown small, leaves not very numerous.

22. **ST. VINCENT'S.** This is the Green St. Vincents, Green Olive, and St. Thomas's of the Hort. Soc. Cat., and Green Providence, Stubton Seedling and Sugar-loaf Bahama, of some gardens. Speechly described the leaves as being the "same length as the Queen;" if well grown they will be found much longer, and differ only from the Green Providence in being narrower, less keel-shaped, and the upper surface paler green and rather more mealy. Flowers purple, middle-sized. Fruit bluntly pyramidal, slightly mealy and of a dull olive colour, when ripe of a dingy yellow, from two to four pounds, highly-flavoured, and swells readily during the winter months. Pips middle-sized, flat, and rather depressed in the centre. Scales covering nearly half the pips; the tops are short, and adhere closely to the fruit, which gives it rather an even appearance. Flesh pale yellow, opaque, juicy, crisp, without much fibre, rich, sweet, and very highly flavoured. Crown middle-sized, leaves rather numerous and slightly spreading.

23. **GLOBE.** The English Globe of the Hort. Soc. Cat. This sort is readily distinguished by the rigid and erect character of its leaves, which are narrower and slightly keeled, a bluish green and very mealy, especially on the under surface. Spines middle-sized and regular. Flowers lilac. Fruit globular, sometimes rather cylindrical, of a dark olive colour before ripening, afterwards of a darkish yellow, slightly mealy, generally weighs from three to five pounds, but does not swell very readily during winter. Pips middle-sized, very slightly prominent. Scales covering about one-third the pips, and terminating in rather lengthened points. Flesh yellow, transparent, very juicy and slightly fibrous, sweet, rich, and rather acid. Crown small, leaves not numerous.

24. **LEMON QUEEN.** Barbadoes Queen, White Barbadoes and Lemon coloured Barbadoes of the Hort. Soc. Cat., and Ripley's New Queen of some gardens. This variety is easily distinguished by its leaves, which are grooved or channeled, and the margins often involute, of a bluish green colour, with a considerable quantity of mealiness. Spines rather deep and irregular. Flowers large. Fruit cylindrical, before ripening of a bright lightish green, when ripe pale lemon colour, and slightly mealy. Pips rather above the middle-size and flat. Scales covering about one-half the pips, ending in short points which adhere closely to the fruit. Flesh pale yellow, transparent, very juicy, a little stringy, rather sweet and pleasant, although not high-flavoured. Crown middle sized, often cockscomb shaped; generally weighing from three to five pounds; does not swell very readily during winter.

25. **OTAHEITE.** The Anson's of the Hort. Soc. Cat. Leaves long, rather broad, and of erect growth, nearly equal in breadth until near the top where they terminate rather acutely; they are also particularly flat, and of a dark bluish green slightly tinged with brown, and a little mealy on the upper surface, very mealy on the lower surface. Spines middle-sized and remarkably irregular. Flowers lilac. Fruit cylindrical inclining to oval; upon ripening deep olive green, covered densely with a cinerous meal, when ripe deep orange yellow, weighing from four to seven pounds. Pips large and flat. Scales covering rather more than one-third the pips and ending in short points, which adhere closely to the pips. Flesh pale yellow, rather stringy and slightly acid, with an abundance

of juice, but not particularly well flavoured. Crown small, leaves rather few and erect. In a small and select collection scarcely worth having.

26. **SURINAM.** Leaves rather narrow, long and slightly spreading; of a bluish green colour, a little tinged and slightly covered with mealiness. Spines rather deep and not very regular. Flowers lilac. Fruit cylindrical, of a dull green before ripening; when ripe a deep orange and rather mealy, weighing from two to four pounds. Pips roundish, middle-sized, projecting and pointed. Scales covering about one-third part of the pips, and ending in lengthened reflexed points. Flesh pale yellow, transparent, rather stringy and very juicy, but neither sweet, rich, nor acid; an inferior sort.

27. **BUCK'S SEEDLING GLOBE.** Leaves long, rather narrow, somewhat keel-shaped and spreading, of a bluish green, slightly tinged with brownish purple and thickly covered with meal. Spines not very strong, but very irregular. Flowers darkish lilac. Fruit cylindrical, somewhat inclining to a globular form, before ripening of a dingy dull green and a little mealy, when ripe darkish orange, weighs from four to five pounds. Pips somewhat below the middle-size and a little prominent. Scales covering about half the pips, and ending in lengthened narrow points. Flesh pale yellow, rather close, firm and juicy, with a rich, highly-flavoured acid. Crown small, leaves broad, short and reflexed.

BROWN-LEAVED SUGAR-LOAF. This is the striped brown Sugar-loaf, and Mocho, of the Hort. Soc. Cat. Nos. 81, 47, and the Brown Sugar-loaf and Antigua Sugar-loaf of some gardens, it must not, however, be confounded with the next. Leaves rather strong, broad, somewhat keel-shaped, and slightly spreading, dark green, much tinged with purplish brown, rather mealy. Spines middle sized and regular. Flowers lilac. Fruit cylindrical, of a dingy green, and considerably covered with mealiness, before ripening; when ripe, dark yellow inclining to orange, an excellent variety, weighing from three to five pounds. Pips large, slightly prominent. Scales covering nearly one half the pips, and ending in short blunt points. Flesh deep yellow, rather opaque, and slightly fibrous, not very juicy, but highly-flavoured and particularly sweet and rich. Crown middle-sized, leaves rather numerous and spreading.

29. **BROWN SUGAR-LOAF.** The leaves of this variety are different from all the other Sugar-loaves; in appearance they much resemble the Enville, but are less mealy and more tinged with brownish red; the fruit also bears a striking resemblance to that of an Enville, but is nearly destitute of mealiness. Flesh is rather firm, deep yellow, opaque, without much fibre, very juicy, rich and highly flavoured, with a little acidity. Crown resembles that of an Enville; a good and handsome pine, weighing from three to five pounds, and swells readily in winter.

30. **MEALY-LEAVED SUGAR-LOAF.** White Sugar-loaf, Dominica, New Mealy-leaved Sugar-loaf, and Allen's Seedling of Hort. Soc. Cat., and Green Sugar-loaf, Anson's, Otaheite, and Brown Sugar-loaf of some gardens. This is readily distinguished from all other varieties by its leaves being channeled or grooved like those of the Lemon Queen, but in a less degree; it also differs in being less mealy, and tinged with dull brown. Flowers lilac. Fruit pyramidal, of a lurid green and slightly mealy, when ripe, of a pale yellow inclining to lemon colour, weighs from three to four pounds. Pips rather below the middle-size, flattish; scales covering rather more than one-third of the pips, and ending in lengthened acute points. Flesh very pale yellow, almost white, transparent, rather soft and fibrous, sweetish without acid, slightly aromatic, not very pleasant. Crown small,

leaves rather numerous; an inferior sort, scarcely worth growing. *Hort. Trans. vol. i. part 1, New Series.*

THE PEACH AND NECTARINE TREES distinguished by their germens. Mr. John Mitchell, gardener, Slapton, Devonshire, has discovered a method of distinguishing Peach and Nectarine trees at an early stage of their growth, when both first produce blossoms; to effect this he dissects a few of the flowers of the trees about which he is doubtful; and that which produces a villous germen always proves a peach tree, whilst those producing germens smooth, and shining, always proves a Nectarine tree. *Gard. Mag.*

METHOD OF FREEING FRUIT TREES FROM MOSS AND INSECTS. Mr. James Thomas of Derveruden Green, near Chepstow, has found the following mixture an excellent application for the purpose. The mixture is made by taking five bushels of well-burnt lime, fresh from the kiln, and slaking it with hot water, in which salt has been dissolved. When the lime has fallen to a fine dry powder, add, by small quantities at a time, a bushel of soot, stirring it in till the two ingredients are completely incorporated. Advantage is taken of the first foggy day when the trees are damp, but not dripping, to dust them over with this powder. One man may treat fifty trees in a day, and the operation, in Mr. Thomas's opinion, should be repeated twice a year; the first time March, and the next in October or November. *Transactions of the Society of Arts.*

AMERICAN MODE OF PLANTING POTATOES. Dig holes three feet distant, put the usual quantity of dung at the bottom of the holes; put in each hole three or four sets, and if it should be a dry summer, the roots will have the advantage of moisture: while they are growing, frequently mould them up well, as there will be sufficient room.

FLORICULTURAL INTELLIGENCE.

NEW AND VERY RARE PLANTS. figured in the Periodicals for September.

CLASS I.—DICOTYLEDONES, OR EXOGENES.

CACTEÆ

MAMMILL'ARIA TE'NUIS.—Taper Mammillaria. This curious and beautiful little plant, ought to be obtained by every lover of succulent plants; its flowers are small, and of an ocherous-white colour; its native country is unknown to us. Introduced by M. De Candolle. Culture.—It flowers in May, and propagates readily by means of the little round hedgehog-like bulbs, which it produces in abundance. They should be planted in lime-rubbish, and a little vegetable soil kept just damp, where they will strike root, and speedily establish themselves. Once rooted, nothing but frost or over-watering will destroy them.—*Bot. Reg.*

LEGUMIN'OSÆ.

HO'VEA CHOROZEMÆF'OLIA.—Chorozema-leaved Hovea. Flowers dark purple. Native of New Holland, from whence it has been lately introduced. Culture.—It is a very healthy green-house shrub, and will thrive, we suppose, like the rest of the species, in equal parts of sandy-loam and peat. Young cuttings will strike in sand under a bell-glass.—*Bot. Reg.*

CHORO'ZEMA OV'ATUM.—Ovate Choroze^ma. Flowers bright scarlet, and yellow. Native of the South-west coast of New Holland, where it was collected by Mr. Baxter. Culture. Like the other species, it will probably thrive in equal parts of sandy-loam, peat, and leaf-mould; it flowers in May, and increases by ripened cuttings struck in sand under a bell-glass. It requires the protection of the green-house.—*Bot. Reg.*

DILLENIAEÆ.

HIBBE'RTIA CUNNINGH'AMIL.—Mr. Cunningham's Hibbertia. Flowers bright yellow, petals waved, and handsome. Native of New Holland. Introduced by Mr. Allan Cunningham.—*Bot. Mag.* Culture.—All the species thrive in an equal mixture of sandy-loam and peat, and may be readily propagated by cuttings planted under a hand-glass in the same kind of soil. They are very pretty green-house plants.

PROTEACEÆ.

GREVI'LLA ROBU'STA.—Gigantic Grevillea. A gigantic tree growing from eighty to one hundred feet high, never yet flowered in this country. The figure drawn from a native specimen, has flowers of a tawny-orange colour. It was introduced by Mr. Allan Cunningham, who says, "in the thick moist woods, on the banks of Brisbane River, this noble species of Grevillea, vies in size and stature with the Flindersia, O'xleya, and other large forest trees; but by none is it surpassed in height in its native woods, except by the Araucaria. Some aged trunks of *G. robusta*, I have found to measure nine feet in circumference. From its deeply-dissected foliage, and the silkiness of the under side, it has obtained the name of "*Silk Oak*" among the pine-cutters of Moreton Bay; but its timber, which is of a tough fibre, has not been appropriated to any use."—*Bot. Mag.* Culture.—They may be potted in equal parts of turfy-loam, leaf-mould, and sand, and should be placed in the coolest part of the stove: ripened cuttings will most probably grow in a pot of sand under a bell-glass, if they are not allowed to become too damp.

ROSACEÆ.

R'OSA I'NDICA, *var Smithii*.—Smith's yellow Noisette Rose. Flowers about the size of the double yellow china rose, but of a much deeper colour, and like the Noisette rose, in clustered corymbs of from ten to twenty-two, and highly fragrant. Raised by Mr. Smith, of Coombe Wood, from the Noisette, fertilized by the pollen of the yellow China. Culture.—It is perfectly hardy, and may be readily increased by cuttings, like the common China rose, and may be regarded as a very valuable addition.—*Brit. Fl. Gard.*

MALVACEÆ.

SI'DA AU'REA.—Golden-flowered Sida. Flowers a rich gold colour. Native of India, from whence seeds were lately introduced. Culture.—It requires the stove, and will increase by cuttings. The soil should be rich loam.—*Bot. Cab.*

ERICEÆ.

ER'ICA VILLOSIU'SCULA. Flowers of a pink colour, lately introduced from the Cape, by Mr. Lee; it grows very bushy, and flowers abundantly in May. Culture.—It requires the usual treatment of an airy green-house, and cuttings of it strike without difficulty. The soil should be sandy peat.—*Bot. Cab.*

EPACRIDEÆ.

DRACOPHY'LLUM CAPIT'ATUM.—Headed Dracophyllum. Flowers white, striped with light blue, growing in a bunch or head, whence its specific name. Na-

tive of the South Coast of New Holland, discovered first by Mr. Brown, and has been lately raised by Mr. Knight, from seeds collected by Mr. Baxter. Culture.—It requires the protection of an airy green-house, and may be increased with difficulty by cuttings.—*Bot. Cab.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

AMARYLLIDÆ.

ALSTRÆM'ERIA HÆMA'NTHA. Flowers of a deep orange-red, about the size of *A. Simsii*, and like them umbellate. Introduced from Chile by Lady Oakes. Culture.—It appears to require the same treatment as the *A. Simsii*. *Brit. Fl. Gard.*

IRIDÆ.

IR'IS NERTCH'NSKIA.—Nertchinsk Iris. Flowers dark blue and yellow. Native of Nertchinsk, in Siberia, on the borders of China, from whence it was introduced by Dr. Fischer. Culture.—It is a hardy herbaceous plant, growing pretty well in a good soil, and increasing without difficulty by dividing the roots. *Bot. Cab.*

ORCHIDÆ.

ANGR'ÆCUM EBU'RNEUM.—Ivory Angraecum. (Fig. 122.) This Genus was first established by Du Petit Thouars, in 1822. It consists as far as is at present known, exclusively of plants, native of trees in the islands of Bourbon, Mauritius, and Madagascar, and of the south-eastern part of the continent of Africa. The flowers of the present species are without scent, both the segments of the Calyx, (sepals,) and the petals are bright green; the front heart shaped segment, (Labellum,) is of a beautiful shining white, like ivory, hence its specific name. Native of the island of Bourbon, where it was found both by Col. Bory de St. Vincent, and M. Du Petit Thouars, growing upon trees. It was also met with at St. Mary's, Madagascar, by the unfortunate Forbes, by whom the only plant, that is known to exist in Europe, was sent to the Horticultural Society. It grows slowly, without manifesting the smallest disposition to branch, or provide means of propagation.—*Bot. Reg.*

A'CERAS SECUNDIFLO'RA.—One sided Acheras. Flowers of a brownish red, small. Introduced from Madeira by the Rev. Mr. Lowe. Culture.—It is a neat little plant, requiring the same kind of treatment as *Ixias* and other Cape bulbs; that is to say, to be kept quite dry and quiescent during summer. Under such management, Mr. Henderson, at Lord Milton's, succeeds in making it flower freely every spring.—*Bot. Reg.*



ARBORICULTURAL INTELLIGENCE.

ON TRANSPLANTING EVERGREENS. The seasons generally taken advantage of for transplanting evergreens are spring and autumn : that is, about the month of May, after the spring frosts are supposed to be over, or in the month of August, before the frosts set in. Mr. John Kinment, gardener at Murie, in Scotland, has invariably found, that such plants as were removed in April and May, had an advantage over those transplanted during the preceding autumn. The reasons he assigns for this circumstance are, that such plants as are lifted in August cannot be supposed to have their young wood so well ripened off as plants that remain undisturbed at that season of the year; if the plants be checked by being transplanted at that season of the year, when the young wood is imperfectly ripened, generally in place of their pushing away vigorously in spring, the young wood is apt to die back, the leaves assume a sickly yellow appearance, and the whole plant is rendered an eyesore. Take advantage of moist weather for removing the plants, and having fixed on the various situations where they are to be placed, cause the pits to be made before the plants are lifted, then take them up, with good roots and balls as entire as possible; the plant, if large, should be put into a handbarrow, made for the purpose, and carried to its destination by two or four men, according to its size or weight; let it carefully down into the pit then adjust the roots and cover them with fine mould, then gently press the soil down with the foot, and give a slight watering through the rose of a watering pot, afterwards fill up the pit and level off; gentle waterings must be occasionally given in the course of the season; in ordinary seasons two or three waterings will be sufficient. On stiff soils, or under large trees, the plants are much benefited by trenching and loosening the earth a few feet all round them the following winter or spring, after being transplanted. On dry soils, and in sheltered situations, evergreens may be transplanted during the winter months with success; but on low lying retentive soils, it is advisable to defer the transplanting of large evergreens till at least the beginning or middle of April.—*John Kinment, Mem. Cal. Hort. Soc.*

ON PRUNING FOREST TREES. Forest trees are regarded either as objects of ornament or of profit. Ornamental trees require no assistance from the pruner. Natural forms cannot be improved by art, even when directed by the most refined taste. It is only in woodlands, raised or maintained as sources of profit, that the skill and exertions of the forest pruner are available. In such cases, the special object is to obtain the greatest quantity of marketable timber. To have timber of the finest grain or quality, no lateral branches that grow within the convenient reach of the pruner should be allowed to arrive at any considerable size: the soundness of timber is not deteriorated by pruning, provided the wounds made in the execution be no greater than will be healed during the following summer. A scar made by the axe, bill, or chisel, if exposed longer than twelve months, will always remain a flaw; for though it may afterwards be covered smoothly over with collapsing wood, it is impossible that any perfect union can take place between a surface of timber which has been exposed to the air for several months, and that which is subsequently formed over it. All wood work (except oak felling and peeling) is done in winter, chiefly because the leaves are off, and the growth has stopped. It is necessary to observe, however, that pruning performed in the

beginning of summer would be a better practice for the good of the trees. The reason is, because wounds made in winter do not begin to heal till after the summer growth takes place. It should be a rule with the pruner never to make a wound that cannot be healed in the course of six months; but he can only attend to this by a timely application of the knife or chisel. A handsaw should never be used in pruning forest trees; because, if the irregular branch be so large as to require this tool, it had better remain where it is: and because though it may injure the columnar form of the bole externally and the regularity of the grain internally, the place where it joins the main body will always be found sound, which it would not be, if cut off. Very tall handsome boles may be formed by the assistance of long ladders, handsaws, and jack-planes; but though these large and carefully polished scars, will be in a few years covered with healthy wood and bark, the marks of the tools will always remain a defect in the timber when it comes to the saw-pit. These circumstances show decidedly the necessity of early pruning, as well to secure quality as desirable forms of timber. To take care that every tree has a principal leader, is a material object of early culture, and to maintain its superiority in after growth, a chief point to be attended to. All laterals that show a rivalry, so as to divide or deform the axis, should be displaced. Very small branches, or spray, need not be taken from the stem; whether they live or die they cannot deteriorate the timber. Forest tree pruning should be done gradually, and continued till the business becomes inconvenient, or too expensive; and if judiciously done during the first ten or fifteen years, sufficiently fine forms will have been given, and proper length of bole secured. The larger the head of a tree, the larger must the trunk be also, the diameter of the latter is increased by the number of branches which are or have been produced by the former. In proportion as the roots are increased and extended, in like proportion are the head and stem. Severe mutilation of the head paralyses the energies of the roots, and *vice versa*. Reducing the number of branches, to give magnitude to the stem is ridiculous. Regulating the growth of the branches, by stopping or cutting out such as are over-luxuriant, gives supremacy and direction to the leader, but no addition to the stem, or any other part. It is wrong that any advantage derivable from wood-lands should depend on or be left to chance. Oak of the straightest or cleanest grain is required for planking, beams, posts, &c. but besides this description, in the dock-yards, cross-grained butts, and knee timbers are in request, and consequently valuable. The *former* quality is obtained in the shortest time, by rather close planting, early and careful pruning, and timely thinning if necessary; the *latter*, by open planting, and partial pruning, i. e. not by aiming at a tall smooth bole, but by leaving the branches in sets of three or four (as it may happen) diverging from one place, and clearing the trunk of all intermediate branches and spray between these sets. But in all ordinary cases, if a sufficient length of bole be gained, the branched head may be depended on to furnish knee timbers. Pine and Fir timber, for the use of builders and mast makers, cannot be too free from knots, and it is impossible to have it so, unless planted and trained up as closely as possible. Fine-grained deal cannot be produced, unless the trees are planted, or chance to stand, as those in Norway, from which battens and ladder poles are cut for exportation, so closely together as to prevent all extension of branches. All the pine and fir tribe intended for profit, should be planted to grow up, and be all cut down together, like a crop of corn. They do not admit of being partially drawn. A single fir

tree requires a large space, and produces the worst timber. Planted as nurses in young plantations of deciduous trees, they are easily kept within due bounds, by a very simple method of pruning, practised by Mr. Billington: viz. by pinching off, from time to time, the leading buds of the branches.—*J. Main, Gard. Mag.*

SUCCESSFUL EXPERIMENT, tried by the Author of Gleanings in Natural History, for transplanting large trees in Bushy Park, in 1831. The plan is as follows:—excavate the earth at some distance from the tree, leaving all the principal fibres, and the earth adhering to them, in a compact ball, undermining as much as possible, and taking care not to shake or injure the ball by twisting the stem of the tree, or using it as a lever to loosen the tap roots: when this is done, and a hole made where the tree is to be placed, adopt the following mode:—Two pieces of iron must be previously formed, of the breadth and thickness of a common cart-wheel tire, three or four inches wide, rather more than half an inch thick, and about six feet long, bent in the form of (Fig. 123,) which will reduce it to three feet across. This will do

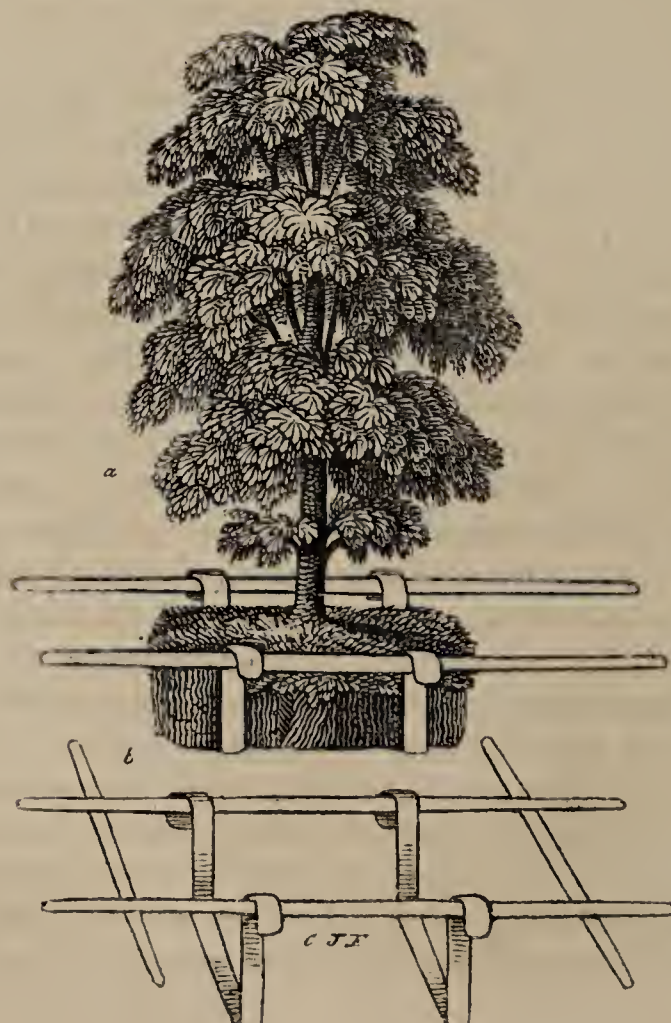
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for trees requiring from two to four men to lift them; but a size larger and stronger in proportion will be wanted for trees, which will require eight or ten men or more to

carry them. Put these irons under the ball of earth, as near the centre as possible, leaving a space between them of about two feet, and for larger trees a little more; run two strong poles about eight or ten feet long, and three or four inches in diameter, but smaller at each end. Apply these poles, as shewn in the sketch, (Fig. 124, a) to each side, passing them through the bends of the irons, so as to form a complete hand-barrow, the tree may then be lifted.

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Cross levers may be used for larger trees, which require more men, as (Fig. 124, b) so that as many men can conveniently apply their strength to it, as are wanted, without being in each other's way. The whole is fixed and unfixed without any loss of time, and requires no tying, nor is there any danger of its slipping off. The roots which extend beyond the ball are cut off at the further side of the trench, and are left projecting. In taking up the tree, it is advisable to go much wider with the spade *from* it than the ball is intended to be; the size of the ball may be afterwards reduced with a pick, so that scarcely a root will be materially injured. In planting, spread the projecting roots out carefully in different layers, as near as possible to their original position, as the hole is gradually filled with mould. The best way of forming the ball, is to prepare it the year before the tree is to be taken up. This is to be done by digging round, and cutting most of the principal roots. This has long been practised with success; but where this precaution has not been taken, the above method will be found preferable to cutting the roots close to the side of the ball of earth. In removing very large trees, the taps and other large roots, which cannot conveniently be got at, may be separated by means of a long chisel, applied under the ball of earth. In moderate sized trees, however, this is not required. The trees removed are not so large as those described by Sir H. Stewart, had it been necessary for me to have planted larger trees, I have no doubt but I should have succeeded equally well, as by means of the cross-levers, the strength of a proportionate number of men may be readily applied. I do not find that any of the trees which I have thus planted require support, as the large ball of earth steadies them sufficiently."—Abridged and transcribed from Jesse's *Gleanings in Natural History*.—By

A CONSTANT READER.

NATURAL HISTORY.

MODE OF FISHING IN CHINA.—Among the many amusing scenes which strike the eye of a European, on his first visit to China, is the ingenious mode of fishing which he sees practised in the neighbourhood of Canton. At the stern of their little punt-like boats, a small mast like a flag-staff, about eight feet high, is fixed. To the top of this a block is made fast, having a sheave to carry a one and a half inch rope. One end of this rope is fixed to a bamboo pole, twelve or fifteen feet in length, and which is hoisted higher or lower, according as it is wanted. The butt end of the pole is kept inboard; and at the other end a light net, about eight feet square, is slung; being kept distended by two slender rods, fixed diagonally to the opposite corners, and bound together in the middle, where they cross each other; and where also they are fixed to the end of the swinging-pole. A stone is thrown into the middle of the net to assist it in sinking, so that it may be, when down, spread out on the bottom of the river. When the fisherman thinks any fish are passing over the net, he suddenly hoists it above the water; and if he has made a capture, he swings the net inboard to take out the fish; if none are caught, the net is dropped again in the same or some other place.—*Mag. Nat. Hist.*

THE DIVI LADNER is the *Tabernæmontàna alternifolia* of botanists, and Eve's apple of the descendants of the Portuguese in Ceylon. (Fig. 125.) The name applied to this tree by the latter people originates in the tradition which prevailed in former days, among the Mahometans and the Portuguese, that Ceylon was the paradise described in the scriptures, that the garden of Eden was situated in it; and that the fruit of this tree was the forbidden fruit of which Eve eat. In confirmation of this tradition, they referred to the beauty of the fruit, and the fine scent of its flowers, which are most tempting: and to the circumstance of the fruit having been excellent before Eve tasted it. The shape gives it the appearance of a fruit, a piece of which had been bitten off; and its effects are so poisonous at present, that two European soldiers, shortly after the capture of Colombo in 1795, being unaware of the nature of the fruit, were tempted by its appearance to taste it, and very soon after sickened and died.—*Mag. Nat. Hist.*

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THE POSSIBILITY OF NATURALIZING THE FIRE FLY.—It abounds not only in Canada, where the winters are so severe, but in the villages of the Vaudois, in Piedmont. These are a poor people much attached to the English; and at ten shillings per dozen, would no doubt, deliver in Paris, in boxes properly contrived, any number of these creatures in every stage of their existence, and even in the egg, should that be desired; and if twenty dozen were turned out in different parts of England, there cannot remain a doubt, but that, in a few years, they would be common through the country; and, in our summer evenings, be exquisitely beautiful.—*Mag. Nat. Hist.*

TEAL.—During the months of November, December, January, and February, the climate of Jamaica is rendered delightfully cool, by the blowing of the north-west wind, which passes over the continent of the North America, and, except an occasional light shower, the sky is always bright with constant sun-shine; so that at an elevation of one thousand eight hundred feet above the level of the sea, the thermometer ranges in the morning from 56 to 60 degrees, and at noon from 70 to 75 degrees. Through the above-named period, the island is visited by vast flocks of Teal, supposed to be the same species named by Gmelin, the Carolinensis or American Teal. They make their way to ponds, and up the courses of rivers; and are shot in great numbers. This bird is most delicious eating. It is considered to come from the southern states of North America. It is thought some remain in Jamaica all the year, breeding in swamps and lagoons near the sea.—*Mag. Nat. Hist.*

THE NIGHTINGALE.—At Goldalming in Surrey, on the 12th of December, (either 1823 or 1824,) Mr. E. Newman of Deptford, heard the Nightingale singing clearly and distinctly, although not very loudly; he had a companion with him at the time, a close observer of birds, who has several times since, borne testimony to this remarkable fact. In the same neighbourhood, the nightingale has been frequently seen in the month of October, and once in November.—*Mag. Nat. Hist.*

A CURIOUS FACT CONCERNING BEES.—As a small vessel was proceeding up the Channel from the Coast of Cornwall, and running near the land, some of the sailors observed a swarm of bees on the Island: they steered for it, landed, and took the bees on board; succeeded in hiving them immediately, and proceeded on their voyage. As they sailed along shore, the bees constantly flew from the vessel to the land, to collect honey, and returned again to their moving hive; and this was continued all the way up the Channel.

SILKWORM.—A striking and interesting peculiarity of this insect is, that it does not wander about as all other caterpillars do, but is nearly stationary in the open box or tray where it is placed and fed; for after consuming the immediate supply of mulberry leaves, it waits patiently for more being provided. This docile quality of the worm harmonises beautifully with its vast importance to mankind, in furnishing a material, which affords our most elegant and beautiful, if not most useful of garments. The same remark applies to the insect in the fly or moth state, the female being quite incapable of flight; and the male, although of a much lighter make, and more active, can fly but very imperfectly. The latter circumstance insures to us the eggs for the following season, and thus completes the adaptation of the insect in its different stages, to the useful purpose it is destined to fulfil for our advantage.—*Mag. Nat. Hist.*

THE ARACACHA.—The Aracacha grows naturally in New Grenada, and other parts of Columbia, where it is known under the name of *Apio*, and is considered the most useful of all those plants, the roots of which are appropriated to the nourishment of man, being superior to the potatoe species, and its flavour more agreeable. It is tender and easily cooked, and is found to be so congenial with the stomach, that it is recommended as a food most fitly adapted both to the convalescent, and those who digest other aliments with difficulty. This plant, which grows in those countries where the temperature rarely rises above 60 deg. Fahrenheit has for some time past, attracted the attention of the Horticulturalists, both in Europe and the United States, and trials have been made with it at Montpellier, Geneva, the horticultural establishment at Fromont, and elsewhere. At Bogota, where the mean temperature is about 60 degrees, a light soil is selected for its cultivation. The roots are planted about fifteen or eighteen inches apart, and when they appear above ground, they are treated in the same manner as potatoes, care being taken to nip off the flowers as they form. In New Grenada, they are six months in coming to perfection.—*Recueil Industriel*.

PREPARATION OF CAUSTIC POTASH.—If one part of carbonate of Potash be dissolved in four parts of water, and the solution boiled with slaked lime, the potash does not lose the smallest quantity of carbonic acid; it does not become caustic, even though lime be added to any extent, or however long the boiling may be continued. If however, six parts of water be gradually added to the above mixture, it will be found, and without further boiling, that the potash loses its carbonic acid gradually; and that after the addition of the last portion of water, the potash is perfectly caustic. If the water be added at once, the potash becomes very quickly caustic. This peculiarity is explained by the fact, that concentrated caustic potash takes carbonic acid from lime. This fact is readily proved by boiling powdered chalk with concentrated potash, entirely free from carbonic acid; the solution added to muriatic acid, occasions brisk effervescence. M. Liebig states, that the carbonate of potash which is to be made caustic, should be dissolved in at least ten parts of water.—*Ann. de Chim. et de Phys.*

FONDNESS OF POULTRY FOR PEPPER.—The *Cápsicum frutescens*, which alone affords, when dried and powdered; the genuine Cayenne pepper, is commonly known in Jamaica by the name of bird-pepper, or hen-pepper, on account of its being so much eaten by birds, and especially by hens and turkeys, which will not leave a pod remaining on the bush, that is within their reach, by jumping up to them. They are so fond of these pods, as to eat a great number of them at a time. These peppers are called *Chilies* in England. Even the Cayenne sold in Jamaica is prepared from several sorts of red capsicums, mixed with the *C. frutescens*; but they are all much inferior in pungency and fine aromatic flavour; and persons who would have it genuine are obliged to prepare it in their own families.—*Mag. Nat. Hist.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

PÆONIES AND SCOTCH ROSES.—It has often come into my head to ask you, whether it would be possible to force some of the species of the Pæony, so that we might have them in the drawing-room before Christmas, and during the winter months? Could the Scotch rose be made to blossom in autumn by shearing it over in spring? Would the Scotch rose force well?

Would it be possible to make the Pæony blossom in autumn?

Can you tell me what good sized Pæony roots of the commoner sorts sell for by the dozen?

I went the other day to the Horticultural Garden. I am surprised to find they do not make more experiments of this kind. It is a very pretty and well kept garden, and abounds in Hollyhocks and Lupinus polyphyllus; I also saw the *Eschscholtzia californica*; all three very curious and rare plants in some parts of the world, no doubt, but not near London.

I have an old hawthorn-hedge round my garden, which is rather hollow at the bottom, could I not strengthen it and add to its beauty, by planting a row of Scotch roses? I think these plants might be used a great deal more than they are in gardens; how often do we see young plants protected against hares by twigs of gorse or furze, would not small Scotch rose plants do as well, and become very ornamental in a short time? When the plants were large enough to be safe, the rose plants might be removed, certainly these would be very ornamental nurses.

AN AMATEUR:

ANSWER TO AN AMATEUR.—All the species and varieties of *Pæony* will force well, but especially those of the tree (*P. Moutan*) varieties, which may be brought into flower at almost any time during the winter, and early spring months.

We are not aware that any means could be used to make the *Scotch roses* flower in autumn, if cut much with either knife or shears, they never flower freely, often not at all.

There is no doubt, but the *Scotch rose* will bear forcing, although we never remember seeing it tried; perhaps some of our correspondents would favour us with their experience on the subject.

The flowering of the *Pæony* could not be retarded by any means we are acquainted with, unless the entire growth of the plant could be stopped; this would always be attended with considerable difficulty, and perhaps in many cases be totally impracticable. After the roots had undergone a few years' forcing, they would annually shew a disposition to flower quite out of their usual season.

An insertion of the prices of the roots, would subject us to advertisement duty.

The bottom of an old hedge might be well filled up, and would soon appear very ornamental, by planting Scotch roses in the vacant places, it would not add much to the strength of the hedge any further than by filling up the hollow parts: if Scotch roses would prove a sufficient barrier against the depredations of hares, when planted round young trees, they would be much more ornamental than twigs of gorse or furze tied round the stem; but we are not satisfied whether they would answer the same end, having never seen them tried.—COND.

HOYA CARNOSA.—To your Correspondent *Florilegus*. The *Hoya carnosa*, is the most easily propagated of any stove plant I know of; it only requires to be cut into pieces, and stuck into a rich garden soil. J. HOWDEN.

PROPAGATION OF ORANGES.—Pray what is the best method of increasing the Orange, and the most proper time for performing it? B. C.

CULTURE OF THE GUERNSEY LILY.—I should be very glad to be informed by some of your numerous correspondents, the method of cultivating the Guernsey Lily, (*Nerine sarniënsis*) as I do not recollect seeing it in any work. HORTULANUS

ANSWER.—We intend shortly to give our observations on its culture, in the mean time we refer Hortulanus to page 694 of the present number, where he will find a detailed account by Arthur.

ARTICLE ON THE CULTURE OF THE PINE APPLE WANTED.—I have perused, with some anxiety, every one of your numbers as they have appeared, hoping to meet with a paper on the Culture of the Pine Apple, but I have hitherto been disappointed. I should feel much obliged, if you, or any of your correspondents would favour me with one at an early opportunity, together with the probable expenses of erecting a house to grow them in, whether the old system of tan and fire flues, or the new one with steam and hot water is best, as I am but a novice in the business. B. C.

SUGAR BAKER'S SCUM.—Have any of the readers of the Register, made use of this manure for Horticultural and Floricultural purposes? does it succeed? in what quantities, how and when is it applied? G. A. L.

BEAUTIFUL VARIETIES OF IXIA, AND THEIR CULTURE REQUIRED.—I lately noticed some beautiful varieties of the *Ixia*, in the collection of a friend of mine, particularly the *Helèni*, *viridiflora*, *grandiflora*, (*Sparaxis grandiflora*?) *rosea*, (*Trichonema roseum*?) *flexuosa*, *tricolor*, (*Sparaxis tricolor*?) and *carmine*. And as I am desirous of also forming a collection of these handsome flowering plants, you would oblige me by adding such names of other varieties, besides those enumerated, that may be equal if not superior to the same. And I have further to request being made acquainted with the proper season for potting the roots, and the usual months of their being in flower. A SUBSCRIBER.

ANSWER.—The proper season for potting the roots is the month of October, the soil most suitable is equal parts of leaf-mould, sandy loam, and peat, well mixed. When potted, set them in a cool frame, and protect them from severe weather till the pots are pretty well filled with roots, then remove them to the green-house or room, where they are intended to flower. After the flowering season, when the leaves are dead, keep the roots perfectly dry in the pots, which is preferable to taking them up; in October re-pot them, and begin to sprinkle with a little water as they require it. The usual flowering season is chiefly in April, May, and June, although some species flower much earlier. We should recommend *Sparaxis lineata*, *Streptanthera cuprèa*, and *élegans*, which are new and very beautiful species. Our correspondent will see we have not strictly confined ourselves to the *Ixia* genus, as we observed he had not. CONDUCTORS.

ERRATA TO THE ARTICLE OF ARTHUR.—Page 695, line 13 from the bottom for "and many ripen plenty of seed. A shell peeled off the bulb with a leaf attached, will grow freely if some pollen be shaken on the stigma, at the proper period, &c." read and many ripen plenty of seed, if some pollen be shaken on the stigma, at the proper period. A shell peeled off the bulb with a leaf attached, will grow very freely. &c.

II.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

At the last meeting of the Society, communications were received and read, from T. A. Knight, Esq. the president of the Society, and from Dr. Knight, the professor of Natural Philosophy, in Marischal College, Aberdeen. They respectively treated on the advantages of irrigating garden grounds by means of Tanks and ponds, and on the most approved method of drying plants for the Hortus Siccus.

The contributions of flowers and fruit to the Exhibition, were as usual, very numerous and beautiful. The following were among the most attractive. Noblesse peaches from the Duke of Devonshire's garden, at Chiswick; striped Hoosainee melons from T. A. Knight, Esq.; large early, Royal, Orange, and Black Apricots; Morocco, Wilmot's new early Orleans, and Cherry Plums: the latter a French variety which bears abundantly.—Citron des Carmes and green Chisel pears; late Duke and Carnation cherries, and twelve excellent sorts of gooseberries. One of these varieties was the Pitmaston green gage gooseberry, which has the good quality of hanging for a considerable period on the bush, without acquiring acidity. It is therefore good for matting up, to keep late in the autumn.

In the flower department, we observed a handsome collection of Carnations and Picotees, Dahlias, *Trachymene cærulea*, *Eccremocarpus scaber*, *Madia elegans*, American runner, *Fuchsia virgata*, and many of the beautiful varieties of *Salvia*, *Pentstemon*, and *Verbena*.

The meetings have now terminated until October. The meeting room being under repair.

DUNDEE HORTICULTURAL SOCIETY.

The July meeting of this Society, was held in the Caledonian Hall, when the vegetables and fruits exhibited were very excellent, and was much admired. Mr. Kinlock produced some well preserved apples; and Mr. Kidd, Rosié Priory, two young vine plants in pots, each bearing a good bunch of grapes, approaching to maturity; these plants were produced from the surplus shoots taken from vines trained on the spur system. Mr. Kidd having gathered a few of these spare shoots showing blossom bunches, planted them in pots, placed them in a close moist heat, and succeeded in rooting them, and perfecting the fruit.

THE MARKET OVERTON SOCIETY OF FLORISTS,

Held their Annual show of Carnations, on Wednesday the 1st of August, when there appears to have been a good competition, and many prizes awarded.

THE WYMONDHAM SOCIETY OF FLORISTS,

Held their Annual show, at the Hunter's Inn, in that place, on Wednesday, the 8th of August, which was well attended, and gave great satisfaction from the excellent assortment of Carnations.

III.—MONTHLY HORTICULTURAL CALENDAR.

FOR OCTOBER.

The fruit trees in most places appear to have suffered more or less from the attacks of insects this season, owing, no doubt, as we formerly noticed to the open weather last winter. The wood also appeared later in ripening than in the preceding year, owing probably to the quantity of rain which fell during July and August. This however has been chiefly remedied by the very fine weather in September, and the trees now promise well for a good show of blossom next spring. At page 192 we recommended planting all kinds of fruit trees this month, if the wood was well matured, and we urged the necessity of doing it before the leaves fell, considering them important to the welfare of the trees. If any green-house plants remain out of doors, the sooner they are brought in the better. Every exertion should be used when there is dry weather, to gather in and housing of fruits, &c. and making preparations for the ensuing year.

FRUIT DEPARTMENT.

Apples should now be gathered in dry days, and carefully placed in the fruit room, or packed in earthen jars, page 192 and 563, and placed in a cellar; those who have not such conveniences may do as recommended, page 45, 192, and 607.

Apricot Trees should be kept securely nailed to the wall, as the branches at this season, if neglected, are liable to be broken by the winds, page 192. The *Moor-park* is apt to be infected by the Canker. For Mr. G. Lindley's remedy, see p. 164.

Peach and Nectarine Trees must also be kept securely nailed until the leaves fall, for their treatment, p. 18, 192, 481, 534, 673, and 721.

Cherry and Plum Trees by the end of the month, if the leaves are all off, pruning may be commenced.

Grapes. Vines in pots, now brought into the Vinery, will ripen their fruit in the beginning of March, p. 6, 185, 490, 536. Those growing on flued walls, must be screened from all frosts until the fruit is ripened and cut; also it will be necessary to make fires to ripen the wood, p. 73; expose to the open air those intended to be trained on the rafters, until the time appointed to force them; their mode of pruning is noticed 338, and the Culture as practised in France 341.

Gooseberries and Currants may be pruned when the leaves are off, and the wood ripe; this is also the best time for planting them. See Muscroft's Observations on the Gooseberry, where sorts are recommended, p. 203.

Strawberries. New beds may still be made, but they do better if planted in September, p. 192; also H. J's mode of planting, p. 329: and Mr. Fairbairn's method of making the beds, p. 262; those in pots intended for forcing, should now stand in a south aspect, p. 395.

FLOWER DEPARTMENT

Carnation layers must be protected from heavy rains, frosts, and cutting winds.

Auriculas should now be placed in frames to stand through the winter, p. 57.

Dahlias.—Lay about four inches thickness of rotten bark or leaf-mould over the roots, two feet round the stem of each plant, to prevent the crowns from being damaged by sudden frosts p. 147, and by the end of the month they will probably require to be taken up.

Hyacinths should now be planted, but they do well if not put in till November. See p. 588.

Tulips At the end of the month, or the beginning of November, tulips should be planted; this is also the time generally practised for sowing tulip seed, p. 105.

Chrysanthemums in pots should now be removed into the green-house, give abundance of air to keep them from drawing, or they will flower weakly.

Propagate Pelargoniums by cuttings, p. 102.

Forcing Plants from the natural ground, intended for forcing in spring, should now be potted carefully, as pinks, carnations, &c. &c.

Roses in pots now placed in the forcing-houses, will produce flowers about Christmas, p. 248.

Ranunculuses now planted in frames, will bloom in February.

Petunia nyctaginiflora. Seedling plants, may be turned out in a warm border.

Tigridia pavonia growing in the borders, should now be taken up, p. 187.

VEGETABLE DEPARTMENT.

Cabbages for spring crops, should now be planted. Prick out a small bed to fill up with in the spring, or plant for a second crop.

Celery should be earthed up in dry weather. See p. 192, 289, 290, and 433.

Cauliflowers should now be planted on a south aspect under hand-glasses, for an early crop, also prick out a quantity in frames, or close under a south wall; let some be potted in 60-sized pots, and sheltered in a frame, to turn out for the first crop.

Lettuce to stand the winter, should now be planted close under a south wall, and some in frames, lest those under the wall should be destroyed by frost.

Peas and Beans may be sown in favourable situations for an early crop, but they are not to be depended on.

Onions should now be taken up, if not done last month, choose dry weather for the purpose, and let them lie exposed to the sun until they are perfectly dry, then remove them to a dry airy room.

Herbs for forcing should now be potted, as Mint, Tarragon, &c.

Asparagus beds may receive a top-dressing towards the end of the month, upon Mr. Robertson's system, p. 73.

THE HORTICULTURAL REGISTER.

NOVEMBER 1ST, 1832.

PART I. ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.

THE TREATMENT OF THE CAPSICUM FRUTESCENS.

BY MR. JOHN WOOLLEY.

Gardener to the Marquis of Stafford, Trentham.

I AM induced from the request of your correspondent "Sage," to send the following account of my method of treating the *Capsicum frutescens*. In February, or early in March, I sow the seeds in pots of rich mould, and place them in a hot-bed. When the plants are about three inches high, I plant them in pots of four inches diameter, three or four in a pot, and again place them in the hot-bed, until they are about nine inches high, when I repot them in pots six inches in diameter. I then place them in the stove until they have established themselves, when I again shift them into pots of nine inches diameter, they are then placed in a hot part of the stove exposed to as much light as possible; in this situation they will fruit freely. In the autumn I place them in a cool house, having about the temperature of 55 degrees, here they are allowed to remain in a dormant state until February, when they are repotted in pots of 12 inches diameter, and treated as before described; in the second season they will be found to fruit very abundantly.

In the autumn I again place them in a cool house and treat them as before. These old plants are not potted in the spring, but about the end of May I begin to expose them by degrees to the weather, and by the middle of June I plant them in a warm border without disturbing their roots, they then fruit well all the succeeding summer. The composition in which I grow them is a light rich loamy soil, with nearly one-third of decomposed leaves well ameliorated by the frost.

JOHN WOOLLEY.

Sept. 27th, 1832.

ARTICLE II.

ON PRESERVING FRUITS AND SEEDS.

BY A PRACTICAL GARDENER.

YOUR correspondent "J. T." (p. 688) notices an instance of an importation from the East Indies of seeds, which, being mixed with charcoal dust and infolded in paper, proved to have retained their germinating powers unimpaired by the voyage. The writer adds, that he is not aware whether that method is much practiced. Upon this point I am also in ignorance, but the following extract, *verbatim et literatim*, from a somewhat rare work,—Bradley's Survey of the Ancient Husbandry and Gardening, collected from the Greeks and Romans*—will probably amuse some of your readers, and show that nearly a similar mode for the preservation of fruits and seeds, was recommended upwards of one hundred years ago. "Wood ashes" says the author "I have experienced to be an excellent preserver of fruits, and much the best thing we know to pack tender fruits in for transportation; it will not only keep such soft fruits as peaches, nectarines, apricots, &c. from bruising in the carriage, but keep their fleshy parts from putrefaction. The late Lord Capel, who was so famous for his fine gardens at Kew Green, by this means had fruit sent him from this place to Ireland in very good perfection. The method of doing which was to gather the fruit when it was quite dry, and after laying it in flannels for some hours, a box was prepared for it with a bed of fine sifted wood ashes at the bottom, about four inches thick, upon which the fruit was laid so as not to touch one another by about an inch, and then wood ashes sifted over them till all the spaces between them were filled, and the fruit was covered about two inches; then more fruit was laid in as before, and then more ashes, and so on, *stratum super stratum*, till the fruit reached within

* Lond. 1725.

four inches of the top of the box, and then as many ashes sifted over it as could be pressed down under the lid of the box by a man's full strength; so was it carried several hundred miles without receiving the least injury. The fineness of the parts of these ashes, render them in the first place capable of being pressed so very close together, that there can no air get through them; nor are their parts such as are apt to imbibe moisture, and are therefore incapable of putrefaction; for we may keep them many years without perceiving them to alter or change from what they were when they were first made, and not only without any putrifying quality in themselves, but seem also to contain some power which is opposite to putrefaction, and therefore we never find any insects breed among them; for this reason I am apt to believe that wood ashes would be the best thing we could use to bring seeds in from foreign parts, as the East and West Indies; for in long voyages we find most seeds inclined to rot and breed in insects. This way I believe will keep them sound, especially since the ancients affirm, that the Lentills which are subject to corrupt may be kept by them."—p. 163.

In preserving fruit as above described one precaution would seem obvious, namely that of wrapping each separately in soft paper.

The following practically useful matter is from the able pen of Dr. Andrew Duncan, jun. F. R. S. E. &c. Edinburgh. Currants, cherries, and damsons, gathered perfectly dry and sound, may be put into bottles closed with cork and rosin, and buried in a trench with the cork downwards. Fine bunches of grapes may also be preserved in bags, by closing the cut end of the stalk with wax, which prevents the escape of moisture, or they may be packed in very dry bran or sand. Some may even be preserved by being kept immersed in water. This is constantly practiced with regard to the cranberry, and sometimes succeeds with apples.

“The preservation of fruit is in many countries an object of much importance. In some the great object is to preserve the fruit in as natural a state as possible. This is peculiarly the case in regard to winter apples and pears, and grapes. The time for gathering fruit depends upon the exposure, and the manner of gathering them influences their keeping. After having prepared the fruit room, a fine day is to be chosen, and, if possible, after two or three days of dry weather, and about two o'clock in the afternoon the fruit is to be gathered, and deposited in baskets of a moderate size, taking care that none of it receive any bruise or blemish, for the injured part soon rots and spoils the sound fruit in contact with it. As the summer fruits ripen more quickly after they are pulled, only a few days

consumption should be gathered at once, by which means we can enjoy them for a greater length of time. Autumn apples and pears should be gathered eight days before they are ripe, and indeed some kinds never become fit for eating on the tree. If they have been necessarily gathered in wet weather or early in the morning, they should be exposed a day to the sun to dry, and they should on no account be wiped; this rubs off the bloom as it is called, which when allowed to dry on some fruits constitutes a natural varnish, closing up the pores, and preventing the evaporation of the juices. They should not be laid in heaps, which causes them to sweat and undergo a slight fermentation; for fruit thus treated, if it does not spoil, gets dry and mealy; and hence in this country the ordinary apples, imported from England and the continent, are inferior to our own. The principal requisites for a good fruit room are, great dryness, equality of temperature, and a power of excluding light. Some curious persons preserve fine pears by passing a thread through the stalk, the end of which they seal up with a drop of sealing wax, enclose each separately in a cone of paper, and hang them up by the thread brought through the apex. Experience has also proved, that grapes keep better when hanging than when laid upon a table. The cut end should be closed with wax, which prevents exhalation. Some hang them by the stalk, others by the point of the bunch, as the grapes are thus less pressed against each other; but it is in both cases necessary to visit them from time to time, and cut off with a pair of scissors every berry that is mouldy or spoiled.

A PRACTICAL GARDENER.

Newport, Isle of Wight, Aug. 31, 1832.

ARTICLE III.

ON THE NATURAL HISTORY AND CULTIVATION OF THE STRIPED HOUSAIN'E PERSIAN MELON.

By the Author of the Domestic Gardener's Manual.—C. M. H. S.

FIRST PAPER.

THIS is a subject of peculiar interest to me, and it is my earnest desire to render it the same to others; for, the fruit in question, well deserves the utmost attention that can, by any possibility, be bestowed upon it. Before, however, I enter upon the particular description of this individual variety of the melon, I conceive I shall be

doing your readers some service by soliciting their attention to the character of the family to which it belongs; and here I take the liberty of suggesting, that much important information would be afforded, were writers upon Horticultural subjects, to seize every favourable opportunity of conveying elementary instruction, concerning the botanical character and natural habits of the plants upon which they write. Our knowledge, or rather conduct, has heretofore been too empirical; we have taken things for granted, merely because our own practice, or that of our predecessors has been productive of certain specific results. But in the present day, when science is spreading in every direction, and men of all ranks are seeking for a knowledge of *causes*, while they observe *effects*, it becomes us not to rest satisfied, until we can trace every subject (that is deemed worthy of enquiry at all) to its fountain head.

In order to set an example of that mode of conveying instruction, which I recommend to the consideration of others, I shall commence this article by an inquiry into the origin and meaning of the botanical name, bestowed upon this family of plants: in the next place, I shall add a slight sketch of the character of the *Genus*, and of the *species* to which the individual variety belongs. This will lead me to notice very particularly, the natural habits of the interesting tribe, lately introduced from Persia, among which the *Housainee* melon stands very conspicuous, if not pre-eminent. A *second Paper* will contain a detail of an experiment, wherein many of the facts adduced in this first paper will be elucidated and confirmed.

The *Melon*, according to Loudon's Encyclopædia, No. 4869, has been known in England, since the year 1570, and it appears to have been originally brought from Jamaica. The varieties in common cultivation formerly known by the title of *Musk Melons*, have usually been considered natives of Southern Europe: they are numerous, and Loudon's Catalogue mentions and describes nineteen; but the sub-varieties and intermixtures from crossings, are almost unlimited. In fact, there is reason to believe, that if melons of several varieties be grown in one department, not only will the seeds of each fruit be more or less contaminated, but those taken from the same individual melon will be found to produce plants, whose fruit may differ very considerably in appearance and character.

The *Melon* is a species of the *genus* or family *Cucumis*, or Cucumber. This term is derived from *Κεκυμαῖ* *kekumai*, it indicates a swelling or tumidity, and to no fruit can it be more appropriate, than to the cucumber and melon. The name *Melon* (*Melo*, latin) is derived from the greek noun *Μηλον* *Melon*, whence *Malon*, (and

Malum, latin) an apple. *Cucumis Melo* therefore, may literally be translated the *Apple cucumber*, and with some propriety, because the fruit approaches towards the figure of an apple. But its chief and particular resemblance may be referred to the odor which it emits: in fact, so closely does the specific aroma of many melons approach to that of the apple, that persons may be deceived who are not aware of the exact situation of each.

The *Genus* or family *Cucumis*, belongs to the subclass Calycifloræ of the Jussieuean, or natural system; this division contains plants, whose petals (or flowers proper) are separate from and inserted into the *Calyx*, or external cup; and whose stamens are perigynous, or distinct from the Corolla and inserted in the Calyx; and to the order *Cucurbitaceæ*, that is to say, it is one of a tribe of plants whose natural character closely, or more or less resembles that of the Gourd, (*Cucurbita*.)

In the Linnean system, the genus *Cucumis* is found in the twenty-first class *Monœcia*, and eighth order *Monadelphía*. The compound word *Monœcia* is derived from the greek words *Monos*, one and *Oikos* a house: the class includes those families which have distinct male and female blossoms, but still growing on the same individual plants. The term *Monadelphia* from *Monos*, one and *adelphos*, a brother, expresses a peculiar structure or arrangement of the stamens or male organs; whereby they are (however numerous, may be the anthers or tips) united at their base, so that they may be detached and removed in one entire body from the flower.

The *generic character* of this genus *Cucumis*, is described as consisting of two distinct species of blossoms. The male flower has a five-toothed *calyx* (flower-cup) a bell-shaped *corolla* of one petal, divided into five parts to a considerable depth, and three stamina more or less united.

The female or fructiferous flower resembles the male in most particulars; but in lieu of the stamens, it has a three cleft pistil or central column, and a swollen roundish, oval, or very long germen *below* the blossom, which crowns and terminates it at the apex. This germen becomes the future fruit. The female does not contain stamens and anthers properly so considered. Nevertheless, I have frequently remarked in the melon, at least, three or four processes closely resembling anthers, that surround the pistil near its summit, and which, I am inclined to think, partake somewhat of the character of true anthers, and may perhaps, act as efficient organs of impregnation.

The *Housainée*, or Hoosainee melon, is one of those extraordinary

varieties, which have of late years been introduced from Persia. Of these, the *Encyclopædia* of gardening makes mention of two only, viz.: 1st. the *Dampsha*, the distinguishing feature of which is, that, if kept in a dark room, it will remain good during the winter months.

2nd. The *sweet Melon of Ispahan*: this is a large and very peculiar fruit, somewhat resembling in figure, a large swollen cucumber; its skin is extremely delicate, pale sulphur yellow, smooth, or with very few vermicular reticulations, flesh white, flavour luscious, abounding with a rich saccharine juice. This Melon appears to be the peculiar favourite of Mr. Knight, the venerated President of the London Horticultural Society; and some idea of his successful method of cultivating it, may be gathered, by consulting pages 263 and 302 of your *Horticultural Register*. I too, have raised this variety, and ripened the fruit during the present summer; but I withhold any paper on the subject, till my experience be more certain and determinate.

The reader will perhaps be gratified by a reference to that useful work, *Lindley's Guide to the Orchard, &c.* wherein the distinctive qualities and natural habits of the Persian tribe are ably and clearly detailed. At page 235, Mr. Lindley enumerates six varieties, and then observes, page 239, "The melons of Persia differ remarkably from the varieties commonly cultivated in Europe. They are altogether *destitute of the thick hard rind* which characterises the latter, and which renders the one-half of every fruit useless; on the contrary, they are protected by a skin so thin and delicate, that they are subject to injury from causes which would produce no perceptible effect upon the melons of Europe. Their flesh is extremely tender, rich, and sweet, and flows copiously with a cool juice which renders them still more grateful. To these important qualities, they in many cases add the merit of bearing abundant crops of fruit, the appearance of which is always extremely beautiful." Further on, when describing the proper method of their successful culture *here*; and that pursued by the Persian gardener in their native climate, Mr. Lindley proceeds thus:—"They are found to require a very high temperature, a dry atmosphere, and an extremely humid soil; while they are at the same time impatient of an undue supply of moisture, which causes spotting and decay long before the fruit is matured.—It is not easy therefore, to maintain that necessary balance of heat and moisture which in Persia arises out of the very nature of the climate and mode of cultivation. In that country, we are told, that the melon is grown in open fields, intersected in every direction by small streams, between which, lie elevated beds, richly

manured with pigeons' dung. Upon these beds the melons are planted. The Persian gardener has, therefore, to guard against nothing but a scarcity of water, the rest is provided by his own favourable climate. With us, the atmosphere, the ventilation, the water, and the heat, are all artificial agents, operating in opposition to each other."

Having thus treated generally of the melon, and referred to such authorities as may tend to prepare the reader for what remains to be said on the habits and cultivation of this newly introduced tribe; I shall proceed to speak particularly of that most interesting variety, which will form the chief subject of the remaining part of this paper.

The *striped Housainée melon*, is to the present day, scarcely known in this country; in fact, it was not at all known, until Mr. Knight gave a description of it, in the Horticultural Transactions of 1831.

A melon, (No. 19, of Lindley's Catalogue,) termed the *Green Hoosainee*, is therein described as a handsome egg-shaped fruit, five inches long, and four inches in diameter, of a fine, even, bright green colour, rather yellow when ripe, and with greenish flesh;" but this differs in many essential particulars, from the excellent variety that I shall now attempt to describe.

The striped Housainée melon is a noble fruit, one of great beauty and excellence: its skin is firm, but thin, the rind under it, and the fleshy cellular substance adjoining, to the depth of rather more than the eighth of an inch, is of a bright green, gradually becoming paler, till it meets and blends with the bulk of the flesh, which is of a pinkish buff or salmon colour; the green portion is not *quite* so tender and juicy as the internal substance; but the whole may be eaten so as to have nothing remaining but the thin exterior integument: there is no defraud in this fine fruit, all is juicy and eatable, the flavor is delicious, the odor that of a fragrant apple, and the fruit will long remain good without decay.

In its form this melon resembles an egg, the stalk-end being more enlarged than that of the blossom. It is, during its early growth, of a dark green colour, but as its age advances, the stripes become very apparent: they are of a full sombre green, and divide the surface into distinct marked portions, leaving it, however, perfectly free from grooves or furrows; and hence, this variety may be styled, *a smooth melon*, although it finally becomes reticulated with an ash-grey coloured net-work. When near to maturity, small greenish yellow spots are manifest among the interstices of the netting, and a clear yellow circle surrounds the part at the insertion of the footstalk.

There is no determinate change of colour, that absolutely marks the state of perfect maturity, at least, I have not perceived such; the general tint appears to me to be a glaucous or sea-green, covered more or less with a pale greyish tissue of vermicular reticulations. In some individuals, the green stripes remain very conspicuous to the last: in others, they become almost obliterated.

The *maturity of the fruit* upon a fine and healthy plant, is to be determined by the age, taken in connection with the increase, *in intensity*, of the yellow in the circle round the stalk, the *softness* of that part, and perhaps, by the formation of a circular crack at the spot where the stalk joins the fruit. No distinctive *odor* is to be expected. If indeed, an accident cause *disease*, or the *death* of the plant, or if the leaves be broken so as to destroy their vital energy, the fruit will be arrested in its growth, and then, it will assume a suffused *yellowish tint*, and emit the order of a melon. I had one fine fruit that enlarged with the utmost rapidity, till it weighed above five pounds; the leaves of the plant were then injured by an accident, so much so, that the plant became torpid. The fruit, from that moment ceased to enlarge, its tint changed, its substance became soft, and the odor of a melon was diffused; at the same time a still larger fruit that had begun to swell above ten days before, remained unchanged, and it continued to improve for above a fortnight, after the one injured was removed, neither varying considerably in its tint, nor giving out the slightest distinctive aroma. *Maturity* may however be ascertained by one circumstance, which (to adopt the expressive language of Mr. Knight,) will afford "an unerring induction of the time when the fruit ought to be cut. *Little globules*, apparently of water, *but really composed of the juice of the fruit*, appear at the junction of the fruit and its stalk. If such bubbles appear, and are *sweet to the taste*, the fruit should be instantly cut."

I have witnessed the correctness of these remarks, but may add, that in the largest specimen produced by me this summer, the oozing of saccharine matter took place *upon the stalk*, at a spot about half an inch above its insertion, and where it had become rather flaccid or withered: no odor was perceptible, nor could any other certain sign of ripeness be traced, although the fruit had remained upon the plant, fourteen days longer than another individual that was in the same department.

The *plant*, in its *habit of growth*, is one of the finest and most interesting objects imaginable. The stem, if led perpendicularly up to the height of three feet, will comprise about ten clear joints. From each joint, at its angle, a noble leaf nearly a foot in diameter

is produced; it is supported by a *petiole* (footstalk) about ten inches in length, that takes a most graceful double bend, in figure resembling the branch of a chandelier. The plate of the leaf is of a most vivid green, its surface rough with short bristly hairs. In shape it is obtusely heart-shaped, and very broad near the base. From the axils of these leaves, lateral shoots would naturally be sent forth, but each of these is to be removed to a certain height, for a reason that will in due time be assigned.

The *flowers* both male and female are small, frequently not exceeding three-fourths of an inch in diameter, at the extreme edges of the *limbus* or border; they are of a sulphur or pale yellow colour, rather few in number. The males, as far as my observation extends, are produced somewhat before the fertile blossoms, and this appears to be a wise provision of nature, to insure the safety and perfection of the fruit; the melons formed *above* the tenth joint are generally found to set with greater certainty, and to grow to a greater size than others that appear during the infantile state of the plant, nearer to its roots.

"The *Housainée Melon*," as Mr. Knight justly observes, is upon the whole "of very easy culture," and the plant very productive of fruit; but "that it is very long in ripening." When ripe, however, he adds, "*it remains in perfection*, a very valuable quality to the fruiterer." Another feature, and one that he deems of great moment is, that "the natural habits of the plant, which he feared would not prove *permanent*, he has found to be strictly so." I have quoted his own words to me, merely changing the person, and I may add, that the only circumstance worthy of real regret is, that the fruit is not only tardy, but somewhat irregular in the period of its ripening. Mr. Knight, with every advantage of machinery and aspect, considers fifty days as the time required, if the weather be such as it was during a considerable part of July last, that is, deficient in sunshine, with cool nights, and frequent showers. But I have had fruit which remained from sixty to eighty-four days on the plants, without evincing any decisive signs of becoming too ripe. My aspect, however, is south-east; and hence, I lose the afternoon's sun. But although this irregularity is tantalizing, there is one positive quality that amply compensates for the apparent evil; the fruit never decays, bursts, nor becomes flavourless.

My paper has extended beyond the proper limits, and much remains to be said. This I must refer to a second article, when I shall endeavour by a recital of actual facts, deduced from experiment and observation, to render the method of successfully cultivating this elegant fruit, at once perfectly intelligible and easy. G. I. T.

ARTICLE IV.—YEAST AS MANURE.

DR. THOMSON in his *Annals of Philosophy* (vol. 16,) mentioned having seen a curious experiment made in the early part of the summer of 1820, by Mr. Phillip Taylor, of Bromley, the effects of which he witnessed in the month of June of that year. Mr. Taylor put upon a grass field, a quantity of common porter yeast, in order to see what effect it would have as manure. In the month of June when Dr. Thompson saw the field, the effect of the yeast was very remarkable. That portion of the field which had been manured with it, was of a much darker colour, and the grass on it was much longer than on the remaining portion of the field. Thus, adds Dr. Thomson, there cannot be a doubt, that porter yeast, and every kind of yeast, may be employed as a very efficacious manure, and it is easy to imagine various cases in which yeast might be applied as a manure with considerable advantage.

J. T.

 FLORICULTURE.

ARTICLE V.

CULTURE OF THE NATURAL ORDER AMARYLLIDÆ.

BY ARTHUR.

(Continued from page 735.)

20. NARCI'SSUS (*Narke*, stupor ; effects of smell upon the nerves.) All the species of this genus thrive in a light sandy soil, and force well either in pots of soil or glasses of water. They are well known inhabitants of the flower borders, and constitute one of its greatest ornaments. Many of the more choice kinds are grown in beds composed of equal parts of strong rich loam, leaf-mould and rotten dung, with a small portion of sand. In November the bulbs are planted about three inches deep, and seven inches apart. The roots should be taken up every three years and replanted, separating the offsets. The season for doing this either in borders or beds, is as soon as the tops have died down, which generally happens in July ; choose a fine day for the purpose, spread them on a mat in the sun to dry for a few days, after which remove them to a cold shed; and

spread them on the floor, or other convenient place, in preference to putting them in bags, until the planting season. The offsets are to be separated and treated as the old bulbs. *Propagation by seeds.*—Gather the seeds as soon as ripe, and sow them in pans or pots filled with light maiden soil, place them in a situation not too much exposed to the sun until the end of September, when they may be set in a frame and screened from heavy rains and frost, let them have as much sun as possible all winter, and by the end of March they will be up. Keep them in the frame till the frosts are over, then place them under an east wall all summer; when the leaves are dead give the pots a top-dressing with fresh soil, and treat them through the second winter as recommended for the first. At the end of the second summer turn them out of the pots, and plant them in beds of light sandy soil about two and a half inches apart. After they have stood two years in this bed, replant them six inches apart in another bed composed of equal parts of strong rich loam, leaf mould, and rotten cow dung; here they will come into flower, after which they may be treated as the old bulbs. A. H. Haworth, Esq. after a careful and diligent research has considered it necessary from the differences of structure in the flower and fruit of the genus, to divide the species into 16 different genera called 1. *Corbulária* (*corbula*, a little basket,) ten species, the hoop-petticoat family. 2. *Ajax*—(the brave Greek in the Trojan war) 24 species; the Daffodil family. 3. *Oíleus* (poets lesser Ajax) 5 species; the elipt trunk family. 4. *Assaracus* (a brother of Ganymedes) 2 species. 5 *Ilus* (another brother of Ganymedes) 2 species. 6 *Ganymedes* (cup-bearer to the god's; crown of flower cup shaped) 5 species; contains *Naréissus pulhéllus*, and other species near it. 7. *Diomèdes* (a valiant Greek at the seige of Troy) 3 species; *N. Macleayi* of the *Bot. Mag.* being one of them. 8. *Tros* (the father of Ganymedes) 2 species; *Nar. Galanthifolius*, is one. 9 *Quéltia* (Nicholas Le Quelt) 7 species; the *Nar. incomparábilis*, and approximate species. 10 *Schizanthus* (*schizo*, to cut, and *anthe* a flower; the crown deeply gashed) 1 species, the *N. orientális*. 11. *Philógyne* (*phileo* to love, *gyne*, a woman; approximation of anthers to stigmas) 9 species; *N. odoratus*, is the type. 12 *Jonquilla* (*Juncus* a rush; leaves like rushes) 4 species; the jonquills of the gardens. 13. *Chloraster* (*chloros*, green, *aster* a star; segments of the perianth, like a green star) 2 species, one the *N. viridiflorus* of *Bot. Mag.* 1687. 14 *Hermione* (daughter of Helena and Menelaus) 54 species; *Polyanthus-Narcissus* family. 15 *Helena* (mother of *Hermíone*) 6 species; *N. tenuior* *Bot. Mag.* is one, and 16 *Narcissus* contains 12 sp., *N. poéticus* and

11 others of that form. These divisions however have hitherto been but little followed.

21 *Pancratium* (*Pan* all, *Kratys* force; medicinal qualities.) All the species of this genus are free flowerers, and most part of them inhabitants of the stove. *P. canariense*, and *carolinianum*, however thrive well in the greenhouse, and *P. maritimum*, and *illyricum*, are perfectly hardy; the *P. rotatum* also is nearly so, requiring only a slight shelter in cold or wet weather. They all grow and flower freely in a rich turfy soil, mixed with a small portion of sand and leaf-mould, to keep it open. The stove species grow much finer if plunged in a hot-bed, until the flowers begin to expand, than they do grown upon the old system of constantly standing in the stove. When the pots become filled with roots, they should be shifted into larger; by doing so the flowering season is greatly prolonged. During their growing it is necessary to give a good supply of water, but when in a dormant state, they should be kept dry, or nearly so. Previous to their beginning to grow again they should be repotted, removing about three parts of the soil from the old ball, when potted plunge them in a hot bed as above directed. They ripen seeds very freely, by which, and suckers, they are readily propagated.

22. *Ismène*, (the daughter of *Œdipus* and *Jocasta*.) This Genus contains three species, inhabitants of the stove, requiring precisely the same treatment as the genus *Pancratium*.

23. *Eucròsia*, (*Eu*, well, *krossos* a fringe; cup of stamens.) contains only one species, the bulbs of which grow best in a light turfy soil, mixed with a little peat earth, and a considerable portion of sand. As they are very impatient of wet, the pots should be well drained with potsherds, and the bulbs planted shallow; they only require the temperature of the green-house, and the general treatment of Cape bulbs.

24. *Eùrycles*, (*Eurycles*, a prophet.) A genus formerly included in *Pancratium*, the leaves are broad, not unlike those of the *Hemerocallis*. They are all stove plants, and require the same treatment as *Pancratium*. They are propagated by offsets.

25. *Calostemma*, (*Kalos*, beautiful *stemma*, a crown.) The species of this genus should be potted in sandy loam and peat, and be kept in the green-house. They must have little or no water, whilst in a dormant state; and if replanted previous to their beginning to grow again, they will flower very freely, and ripen plenty of seeds, by which, and offsets they are readily increased. Their general treatment is the same as other green-house bulbs in this order.

26. *Chlidánthus*, (*chlideos*, delicate *anthos*, a flower.) This

genus has but one species, a very fragrant and beautiful plant with bright yellow flowers. It should be potted in similar soil to that recommended for *Calostemma*, and kept in the green-house. It produces its flowers before the leaves appear, similar to the Guernsey lily; every means should therefore be used to facilitate the growth of the leaves, as the flowering of the ensuing spring depends, in a great measure, on the maturity they attain unto. When the leaves have died down, the bulbs should have no water given them, but be kept in a dormant state until towards the usual time of growth, when they should be repotted, taking off all the old soil, and separating the offsets for propagation.

27. *Chrysophiala*, (*chrysos*, gold, *phiale*, a goblet; flowers.) Green-house plants with similar habits to the last, requiring the same general treatment.

28. *A'cis*. (*Acis*, a shepherd, son of Faunus.) All the three species are quite hardy, and should be planted in the open border, in light sandy soil, where they will grow and flower freely. They are increased by offsets, which are plentifully produced, and may be treated generally in the same manner as the snow-drop or snow-flake.

29. *Cobúrghia*. (Prince Coburgh.) The two species of this genus are rather shy at flowering, they may be said to be half-hardy bulbs. They require to be planted out in a warm border, under the wall of a stove or green-house, where, if the weather is not very severe, they will endure the winter; the safest plan, however, is to always take them up when the bulbs are ripe, and preserve them in bags through the winter. In April, plant them out in some good strong rich loam, when they will probably flower, and produce plenty offsets, by which they are propagated.

30. *Clívea*, (Named in compliment to the Dutchess of Northumberland.) The splendid species of this genus require only the heat of the green-house, and that only during the colder months, they may be grown to perfection in a frame, by planting the bulbs in a good rich turfy loam, mixed with a small portion of leaf-mould, the bulbs should be potted very shallow, and watered with care. When in a dormant state, they should be kept quite dry; and if fresh potted just before they begin to grow, they will flower pretty freely. They are propagated by offsets.

ARTHUR.

ARTICLE VI.

THE DISCONTINUATION OF THE NURSERY LISTS.

BY A LOVER OF PLANTS.

HAVING become a Subscriber to the *Horticultural Register* almost solely on account of the lists which it contained of "plants flowering in the nurseries round London," it is not without great mortification and surprise that I find those lists almost entirely discontinued. That you should positively have allowed the gradual decline of the most novel, and interesting feature of your work is astonishing, but it is still more so, that Nurserymen themselves should not have greedily caught at an easy and costly manner of recommending their collections to the notice of the public. Not only is the above manner of obtaining celebrity free from the expense of advertising, but, which is of far greater consequence, it is altogether untainted by the idea of "puffing," which attaches in a greater or less degree to all advertisements whatsoever. In these sentiments many of my friends coincide, who (since like myself they take in the more voluminous and expensive *Horticultural* periodicals) will not deem it worth while to continue the *Horticultural Register*, when robbed of a feature so exclusively its own. As an inducement to Nurserymen to furnish these lists, I may state, that I have this day received a hamper of plants from Messrs Rollissons, of Tooting, with whom, but for those lists, it would never have occurred to me to deal. I am also acquainted with many instances, where custom has been directed through the same channel, to various nursery establishments.

A LOVER OF PLANTS.

Newcastle, Sept. 12, 1832.

ARTICLE VII.

ON THE CULTURE OF THE HOYA CARNOSA.

BY WM. P. AYRES.

THE *Hoya carnosa* is a native of China, and perhaps also of the neighbouring parts of Asia. It was first introduced to this country from China, into the Royal Gardens at Kew, in 1802. The Honourable Mrs. Barrington possessed it about the same time in her garden, at Monewell, in Oxfordshire, from whence it was figured in the *Botanical Magazine* in 1804, and in the succeeding year in the *Exotic Botany* of Sir James Edward Smith.

In the culture of the Hoya, the most important consideration is, the choice of a soil suitable to its nature and habits, the best I have tried, and in which it grows particularly well, is a mixture of vegetable mould and strong turfy loam, about equal quantities, it is not necessary the compost should be sifted; if broken fine, and the larger lumps and stones taken out, it will answer much better, as the plants will root more freely and thrive considerably better; being somewhat succulent, and making but few roots, it must be sparingly watered and but seldom repotted, more particularly if grown in the green-house, where it makes little progress and flowers indifferently.

In order to cause it to produce flowers in the greatest perfection, the heat of the stove is indispensable. It is propagated by cuttings taken from the plants in May or June, and planted in small pots filled with white sand, and plunged in a frame where there is a gentle bottom heat, where they form roots in a few weeks. It may also be propagated by leaves treated in the same manner as cuttings; but as they seldom make any progress except that of rooting, until the second year, it is but little practised.

Before I conclude, it may be as well to mention, that the flower stalk and rachis are permanent, and the latter becomes lengthened, and continues to produce the umbel in the flowering season from its extremity; this circumstance makes the careful cultivator abstain from gathering the blossoms, since each separated from the plant causes the sacrifice of an umbel, which would otherwise last as long as the plant itself.

WM. P. AYRES.

ARTICLE VIII.

TO PRESERVE DAHLIA ROOTS.

HAVING seen in the August number of your excellent Magazine, an enquiry by Alpha, for the best method of keeping Dahlia Roots through the winter, I venture to propose to him the following, as a plan which I have employed during five seasons, without losing a root.

I choose a fine dry day to take up the roots, and expose them for a few hours to the sun, to dry the mould on them. I then clear away all the dirt I possibly can, wiping each root with a cloth, if necessary. When quite *clean*, I put them into a boarded closet on shelves, there being but a very thin partition between this closet and a kitchen. In a few days, I scatter thinly all over them, some very dry sand; they are then left, and only examined from time to time, to see that they do not get mouldy, which, by the bye, I never found happen.

NIL DESPERANDUM.

ARTICLE IX.—THE GUAVA, (*PSIDIIUM CATTLEIANUM*.)

BY MR. J. SMITH,

Gardener, at Snelston Hall, Derbyshire.

AMONGST the numerous exotic plants in our hot-houses, not many have a greater claim on our attention than the Guava, (*Psidium Cattleianum*.) Fig. 126. Although this is a highly ornamental evergreen shrub, it has hitherto been but very slightly noticed; its dark shining foliage and pendulous branches, render it a very conspicuous object in the green-house or conservatory: and its fruit, when fully matured, makes an agreeable variety in the desert; for which reasons I think, it well deserves an extensive cultivation. By keeping a few plants in pots, they will in two or three years bear a great quantity of fruit. Young plants must be first planted in small pots, and then into larger, as the small ones become filled with roots; at length they should be planted into large pots or tubs, where they may remain for many years without further removal, when they will not fail to produce abundant crops. By confining their roots in pots or tubs, the fruitfulness of the trees is promoted. To ripen the fruit well off, it is advisable in the autumn to introduce two or three plants at a time into a forcing house, where the temperature is not less than 60 deg. Fahr. The Guava flourishes best in a rich loamy soil, it should be copiously supplied both at the roots and over the top with water. By this mode of treatment, a succession of ripe fruit may be obtained through the winter season. We have several young plants here, and amongst them is one about four feet high, which was put into a peck pot early in the spring, and is now loaded with not less than ten dozen of fruit, in their different stages of growth, which have a very imposing appearance.

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ARTICLE X.

ON THE CULTURE OF THE HELIOTROPIUM PERUVIANUM.

BY F. F. ASHFORD.

AGREEABLE to my promise, I send you the account of a method of growing the Heliotrope or Turnsole to great perfection, hoping it may be of some service to the more inexperienced portion of your readers. The Heliotropium, (from *Helios*, the sun; *tropi*, turning,) is a native of the shores of Peru, and was introduced into this country in 1757. It belongs to the fifth class and first Order; Pentandria, (*pente*, five; *aner*, a man.) Monogynia (*monos*, one; *gyne*, a woman,) of the Linnean classification, and to the order Boragineæ under the sub-class Corollifloræ of the Jussieuean or Natural Arrangement. Its botanical characters are a shrubby stalk, branching numerously, three or four feet high; spear-shaped-ovate, rough, veined, hairy leaves; from the ends of the branches, issue numerous clustered umbels of pale blue flowers; Calyx monophyllus, five-cleft at the top. Corolla, monopetalous, divided into five unequal segments. Stamina five filaments and small anthera. Pistillum, four germina, slender style, and notched. Pericarpium none; seminæ oval, lodged in the calyx.

To propagate this fragrant Exotic with success, *cuttings* must be taken from the parent about the latter end of February or beginning of March, and planted in pots of rich garden soil, and plunged in a strong hot-bed or bark pit, removing all decayed leaves, &c. as they appear, or they will affect the whole. In two or three weeks, when the cuttings have grown, they must be removed to an airy part of the hot-house for a few days, to harden previous to potting. If a succession of flowering plants, through the autumn and winter months are wanted, more cuttings should be put in, during May and June.

If they are intended to be kept in pots, provide some good soil, composed of one wheel-barrowful of good maiden loam, one wheel-barrowful of good rotten horse dung, half a wheel-barrowful of sandy peat, half a wheel-barrowful of prepared leaf or vegetable mould. The whole must be well chopped and incorporated together, but not sifted; pot off the cuttings in forty-eight-sized pots, allowing as much soil to adhere to their roots as possible; cover these balls of roots about a quarter of an inch deep, pinch off the extreme ends of the plants to cause them to grow bushy, and after giving them a watering, place them in a shady part of the stove till they have ta-

ken root, then remove them into a more exposed situation, and give them plenty of air and water. Due attention must always be paid to potting them as often as the roots appear to mat, or the plants will soon assume a sickly hue; and naked unsightly plants will be the reward of all your pains. When in bloom, remove them to the green-house or conservatory, where they will continue to flower the greatest part of the year. When they have done flowering, set them in a cool part of the green-house until the following February, when they should be cut down, their balls reduced and repotted in the compost. When potted, they should be placed in a hot-bed to produce healthy shoots for propagation, after which the old stools may either be turned into the flower borders or thrown away, as young plants raised every year are to be much preferred for flowering in pots.

But if the Heliotrope is grown purposely for the flower-garden, cuttings put in during the month of September, potted off into small pots, kept in a close frame, and well protected from cold nights, by means of mats or long horse-litter, until the following spring is considered the best method. Harden them by gradual exposure to the open air, so that by the middle of May they will bear to be planted out in beds, composed of a good mellow rich earth. Should cold nights happen after your plants are turned out, (which is sometimes the case) they must be defended by means of hoops and mats, or canvass; if thus protected, they will grow and flower freely, in favourable seasons, until the chilly nights of autumn give a check to their vigour; they should then be taken up with their balls entire, and potted in good sized pots. If placed in the stove, and shaded for a few days, they will continue to flower down to Christmas when a few cuttings may be taken from them for early propagation, and the old plants thrown away.

F. F. ASHFORD.

ARTICLE XII.

HISTORY AND CULTIVATION OF THE POMEGRANATE,

(*PUNICA GRANATUM*.)—BY S. H.

THE generic name (*Punica*) of this tribe of plants, seems to have arisen from the circumstance of the *P. granatum*, being found growing in that part of Africa where ancient Carthage stood; the ancients called the fruit *Malum Punicum* (Carthaginian Apple) and *Pomum granatum*, Kernelled Apple. The specific name *granatum*, (from

granum, grain, on account of the grains of its fruit) was borrowed from the latter. The Grecians seem to have set very great store by this fruit. The tree was first brought to Rome from Carthage in the days of Sylla; and Pliny informs us, that the colour to dye cloth, called *Puniceus*, is obtained from the flowers, and that the Romans used the rind, flowers, and every part of the fruit in medicine.—Sloane says, the rind of the fruit together with the bark of the tree, is still used in some parts of Germany, in the dying and preparation of red leather. The rind also produces as good ink as that made from galls. In its wild state, it grows to a bush from sixteen to eighteen feet high, and bears profuse crops of fruit, something after the manner of our hawthorn. Wine made from this fruit, was strongly recommended by Lord Bacon, for complaints of the liver; or if the wine could not be had, newly expressed juice might be used, he says, “let it be taken in the morning with a little sugar; and into the glass in which the expression is made, put a small piece of green citron-peel, and three or four whole cloves: let this be taken from February to the end of March.” The Persians make a very favourite drink of the rinds, with the addition of cinnamon. The *P. nana* is used as a hedge plant in the West Indies, its leaves are diminutive, and its red flowers, although not large, are pretty conspicuous. The common Pomegranate, (*P. granata*) was first cultivated in England, in the year 1548, during the reign of Henry VIII. Trained against a south wall, its fine scarlet flowers have a most beautiful appearance throughout all the summer months: the fruit, however, produced in such situations, although highly ornamental, seldom has any flavour or comes properly to perfection.

PROPAGATION AND CULTURE.—The usual mode of propagation is by layers. Lay down the branches of the previous years' growth, in May, merely pegging them without making any incision; and by the autumn, they will have made good roots, and may be taken off any time before the buds break, and planted either in thirty-two sized pots in a mixture of good rich loam, and a small portion of sandy peat, or planted against a warm wall, as recommended hereafter. They will also strike freely by well ripened cuttings, taken off in the autumn, and planted in pots filled with equal quantities of light sandy loam and peat, covered over with a hand or bell-glass, and set in a shady part of the green-house or stove, keeping them perfectly free from mould, or over-dampness, until the following February, when they should be plunged in a bark or hot-bed, where they will speedily strike root; they should then be potted off separately, and again plunged in a brisk heat, until they have established

themselves : they may then be gradually hardened, until they will bear the temperature of the green-house, carefully repotting when required. The second year after they are struck, they may be turned out, under a south wall in front of a stove or green-house. Where they are intended to be planted, take out the soil to about the depth of twelve inches, and lay at the bottom about three inches thick of broken bricks or other hard rubble, to prevent the roots from striking deep, and induce them to run near the surface, for if once they get deep, however suitable the soil may be for their growth, they will flower but very partially. Fill up the trench with a good strong rich loam, mixed with a small portion of sand, if it is inclined to bind. Some persons recommend a light sandy soil to grow them in ; some years ago, I tried the experiment, and although the plants grew very healthy and vigorous, they did not show the least inclination to flower.

PRUNING.—Proper pruning will greatly assist their flowering. All the flowers are produced at the extremities of the young branches formed the same year, care should therefore be taken to bring only the strongest buds into action, instead of filling the tree very full of weak shoots ; to accomplish this, cut out all the weak branches of the former year, and shorten the others according to their strength, by these means a quantity of flowering wood may be obtained throughout the whole tree.

GRAFTING.—The yellow, white, and double scarlet varieties are often grafted on stocks of the common one, the operation is performed in February or March, after the same manner as the apple, &c.

TO BRING THE FRUIT TO PERFECTION, it is indispensable that the trees either be trained against a flued wall, or covered with a glass-case ; for although there have been instances of its ripening on a common wall, in some parts of England, yet the flavour has little or no resemblance to those imported from Genoa and Leghorn. And although I have never yet seen them brought to the perfection I could wish, yet the method which appears to me most likely to accomplish the object, is to keep the plants in pots or tubs ; and when a quantity of fruit is set, which will probably be about the middle of August, introduce them into a higher temperature to swell up, and ripen.

S. H.

ARBORICULTURE.

ARTICLE XIII.

ON PRUNING FOREST TIMBER.—BY A MOUNTAINEER.

“If a garden is neglected for some years, a portion of diligence and attention may soon bring it into good condition again : but this is not the case with a neglected forest; if once a plantation suffers from neglect, it is next to impossible to recover it. No branch of Rural affairs, without exception, has made less progress, or is upon the whole less understood” than the *pruning of trees*. Particular regard should be paid, previous to pruning, to the health and vigour, and not to the size of the trees. A vigorous tree full of sap of twenty years of age, may be pruned with more safety, than a stunted one fifteen years of age, because the parts cut over would heal sooner in the former from its being full of sap, than in the latter which was deficient in sap. Indeed the whole art of pruning consists in thinning out the large and strong branches *every year moderately*, according to the size, health, and vigour of the tree, to have the tree well poised with branches, resembling a larch, as circumstances will allow, and leaving those on the tree which will assist the general circulation of the sap.

The safe and proper time for pruning all kinds of wood is the summer months, when the sap having ascended, is stationary in the tree, and before it begins to descend. It is true, all Authors agree that to prune a tree while the sap is in motion either upwards or downwards, is the ready way to cause it to bleed excessively. But there are Authors and practical Foresters, who continue to hold the heretical opinion, that winter is safe, or even a safer period for pruning than summer. During the summer, there always exudes upon the face of the wound, a thin gummy fluid, which, in a few days, seals it up, and skins it over. I have never observed, that the plant has a tendency to renew the branches removed at this season ; but when the same cut is inflicted in winter, the plant is apt to suffer from the action of the frost upon the raw wound ; and moreover, when the spring months arrive, the forester will observe numerous new shoots pushed out from the scar of that which has been removed, and is thus apprized that his task is but imperfectly performed. As to the necessity of pruning in general, it is proved by a single glance at the *short stems* and *overgrown heads* of the *greater part* of the *Oaks*, found in *natural* woods, compared with the close upright

trunks of those which have annually felt a judicious application of the pruning knife. The part of the tree in the former case, which can be sawn out as useful timber, is not, perhaps, above three feet in length, whilst the stem of the latter, has been trained to the height of fourteen, twenty, or thirty feet. It is in vain to contradict these facts, by an appeal to *nature*! Nature is equally favourable to all her productions; it is the same to her, whether the oak produces timber or boughs, and whether the field produces grain or trees.

Human skill and art avail themselves of the operations of nature, by encouraging and directing them towards such results as are most useful to mankind. When we see nature raise a field of wheat, we may expect her to produce a whole forest of clear, straight, profitable timber, but till then we must be content to employ plough and harrow, in the one case, and hatchet and pruning-knife in the other. *Timely thinning* and *pruning* repeated from year to year, as occasion requires, effectually prevents the loss of hopes, plants and labour.

A. MOUNTAINEER.

(*To be continued in our next.*)

ARTICLE XIV.

ON PLANTING FOREST TIMBER.—BY MR. HOWDEN.

By your observations made in page 513, I see you are using exertions towards the establishment of an Arboriculture Society in England; such a society is indeed very much wanted, I shall be most happy, to lend a helping hand to the work.

If only twenty practical men would unite, to write down their experience, and various experiments, so as to form an annual volume, the work would be sure to sell, and knowledge would thus be increased. I should not, however, recommend the owners of land to plant forest trees on lands fit for cultivation. In this Island, timber can be imported cheaper than it can be grown on such lands, but on hills and glens, the pine and oak will pay for planting; also, “belts and squares of oaks and firs” planted for the purpose of shelter will answer very well; but we must procure our best timber from countries not subject to rents, &c. I am now selling scotch fir, at one shilling and sixpence per cubic foot, and importing the same species from Sweden, at three shillings per foot; but then my trees are little

more than thirty years old, whereas, the Swedish are more than three hundred, although only two feet square. England is a commercial country, a small profit and quick return is all that is wanted. The shopkeeper buys sugar at six-pence per pound, and sells it again at six-pence halfpenny; he buys his butter at a shilling, and sells it again for thirteen-pence, he thereby turns his money fifty-two times in the year: the farmer turns his once a year, whilst the forest-planter can scarcely turn his once in his life. Nevertheless, I think nothing can answer better, if a nobleman or gentleman wishes to leave a fine property to his family, than to *plant* all his *waste* lands with forest trees.

J. HOWDEN.

RURAL AFFAIRS.

ARTICLE XV.—A DOMESTIC NATIVE COLONY.

“Sweet are the uses of adversity.”—SHAKESPEARE.

“Children sweeten labors, but they make misfortunes more bitter.”—BACON.

“Optimum elige, suave et facile illud faciet consuetudo.”

It is not usual for female correspondents to appear in your pages; but this fact does not deter me from proposing to venture, where I feel certain to meet with the same polite attention which is extended to all the contributors to the *Horticultural Register*. I have been a subscriber to, and reader of your meritorious publication ever since its commencement, and am anxious that it should continue to please its (I hope numerous) readers. Whether numerous or few, however, they are not confined to gardeners:—many families in different stations, and in various occupations, doubtless anticipate with eagerness the first of every month, in the hope of perusing much that is valuable and interesting in your periodical; and I am not without hope that the little sketch I have drawn of an industrious family of my acquaintance, will be found to possess some claims to the latter quality; and as the *Hort. Reg.* professes to treat of rural affairs, it was conjectured that the present communication would not be deemed irrelevant.

In this taxed and expensive country, now too, that population pours its floods upon the land, in such a mighty stream, as nearly to obstruct all roads to competency; now that to live implies a struggle:

there must be many, very many of the respectable classes of society, who, like my friend the patriarch of "the colony," find a difficulty in placing their sons in situations with even slender expectations of their ultimate benefit. Many too, from losses in trade, are rendered unable to advance a sum of money for an apprenticeship in a respectable business. What then is to become of the children? Must a fine spirited boy, brought up in respectability, well educated, good principled, of gentle nature, and inclined to literary pursuits, must such a lad, finding no scope for his abilities, no opening, no refuge among congenial spirits, must he become a mere mechanical drudge, a ticket porter, perhaps an ostler, a slave of slaves? Yet thus doubtless have the fond hopes of parents been blighted! reared in abundance themselves, trade flourishing, youth and health, and joyous life before a married couple, who shall blame them because they possess not omniscience to foresee that trade will fail, that children will increase as means decay, that doubt and fear, and poverty, will one day canker the hearts of such unfortunate parents, and rob their darling offspring of their hoped for inheritance. But to my "colony," every circumstance of which I pledge myself is founded in fact.

My friend, we will name him Mr. Castles, was the only child of wealthy and over indulgent parents. At their death he found himself in a large and flourishing business. Competitors started, and its profits were diminished, he had married and was the father of several children, before his circumstances appeared to warrant uneasiness. Losses and crosses of various descriptions, accompanied by the strictest integrity of character, conspired to depress him; he left London, and resided for some years in a distant county. His four sons were sent to school in the neighbourhood, and trade still decreasing, he felt it a duty to seek for a small freehold, on which he might reside with his numerous family, for whom no openings offered for placing them out in the world. With the last few hundreds of his available property, (assisted by a generous relative) he at length purchased a small homestead, within forty miles of London, the little property consisting of barely two acres. This is all, though true, too common and very common place, that which follows will be more interesting. Mr. C. is of an active and intelligent mind, and he wisely resolved, since funds had failed, that his sons should devote their time to improve and turn their little spot of earth to the best account. Fortunately the dispositions of the boys were docile, affectionate, and industrious, perhaps the result of precept and example. They were set vigorously to work on the neglected grounds;

and the consequence is, that in the two years and a half, which they have occupied the estate, it is so altered and improved as to be scarcely recognisable.

One of the lads evinced talent for sketching and building ; another became fond of a hammer and nails, a third has decidedly a love for botany, and the fourth a painter and jobber in ordinary to the colony ; while all take pride and pleasure in trenching, digging, and other horticultural pursuits. No workman has been employed upon the premises for two years past, excepting a labourer for a few days last spring, to go through an unpleasant process which Mr. C. did not wish his sons to undertake. Every department of utility is filled by these lads, who are thus receiving the best education—a practical one ; while some boys of their age and station, are learning to translate greek, black shoes, and tyrannise at our public schools ; others are idling their precious time. My young friends are employed from “ morn to dewy eve,”—“ in summers heat, and winter’s flaw,”—in every possible manner that is calculated to benefit themselves, and their little home. The happiest and healthiest lads I know, are the sons of my friend Mr. Castles.

The hothouse that they have constructed, upon scientific principles, the melonry, fancy arches, open rails, gates, &c. are not only creditable, but wonderful, and are the admiration of all who see them, and know the young artificers. So much are they respected too, that they are treated as young gentlemen in the best sense of the word, by the more wealthy families in their vicinity. The most intimate associates of the family, are those who keep their carriages. This I mention merely to prove that a genteel deportment, is not incompatible with the strictest economy, and habits of industry : the intimacy is honourable to both parties.

The recreations of my young friends, are all of a rational kind ; stated hours are devoted to them ; so that a joyous game of fives is successionaly played with spirit ; their gymnasium they have neglected ; but cross bows, long bows, fishing tackle, cricket bats, and boats, are not wanting among them. If the back of the kitchen grate require attention, their mother is informed that “ fire bricks and windsor loam are the best and most durable materials for the purpose,” and the young mason of the colony soon finishes “ the job.” If a washing stand, (painted) bedroom table, bacon trough, &c. are wanted, her amateur carpenter constructs them ; as well as other minor matters too numerous to mention.

A fine microscope enables the young botanist to investigate plants ; and a useful library assists to enlarge the minds of the whole family.

I should mention that poultry, pigs, and a cow form their live stock, the latter animal is partly stall fed. Indian corn, *Symphitum asper-imum*, the orchard grass, mown, and carried to her, with potatoes and lucern form her summer feed, while I see Swedish turnips, carrots, &c. are growing for her winter provender, with a little stack of hay, which was cut from the orchard in July. The butter and cream are as fine as I taste any where, and the management of the dairy does credit to the eldest daughter, on whom it devolves. The younger girl, and pet of the family, is not suffered to be idle, and when her hours of play arrive, the premises ring with her happy voice, singing "snatches of old tunes, passages (either vocal or instrumental) from the works of Mozart, Haydyn, Beethooven, &c. The whole family is fond of music, and the boys frequently sing in (intuitive) parts while working. A very singular custom, I have noticed, in the colony, and that is, they all read at meals. Every breakfast and tea time their favourite books are as regularly taken as their food: they could not else have found opportunity to acquire so much useful information, as that which they possess. Where all are agreed on a point of this description the plan is very pleasant. I have tried it with them, and with them like it.

"Sweet are the uses of adversity," for had not my friend's circumstances deteriorated, they would never have known the blessing of a united, domesticated family; all would have been scattered on the world to sink or swim, to succeed or fail, to become corrupt or escape contamination, to be dutiful or alienated from these fond parents, as it might happen." With all the faults of our continental neighbours they possess one virtue, which is so rare as to be almost unknown in our country, I mean the amiable and affectionate custom of dwelling together in family communities, of two, three, and even four generations. Our offspring are turned out of the nest, while yet unfledged to seek their own subsistence.

I do not advocate my friends plan as a general thing either, and as many others have done, seriously ask him what he means to do with his boys, since his little estate his decidedly too limited to support them by farming &c.; his reply is, "they are gaining health, strength and experience, are living innocent lives, are preparing to become useful, and, I trust, worthy members of the community, should any contingency, of which I see no chance, arise for their removal." This is unanswerable, and I only wish that the wise and reasonable plan were widely known, and as well practised.

I hope, gentlemen, I have not exhausted your patience, or exceeded my limits, and beg to subscribe myself

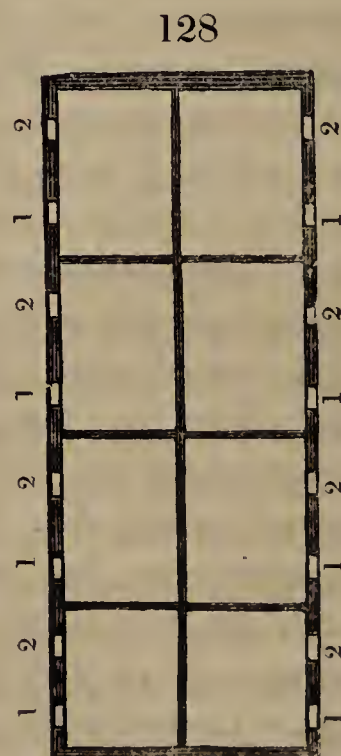
VIOLA.

ARTICLE XVI.

MODE OF DESTROYING RATS AND MICE.

BY MR. JOHN HOWDEN.

A CORRESPONDENT signed "G. N." wishes to know the best method of destroying the short-tailed field mouse, I would recommend the following simple trap. Take a large flower pot invert it on a board or slate, and sink it in the ground nearly level with the surface, opposite the hole in the bottom of the pot, and about two inches from the surface or entrance, may be suspended on a crooked piece of wire, a smooth wooden roller, like the castor of a bed-post, this the mouse will leap upon, and from thence be precipitated to the bottom, from whence it can never escape; and hundreds may be caught in the same trap without any trouble of re-setting. (Fig. 127) The surface may be sprinkled with chaff or short straw, and a mixture of grass and clover seeds about the hole. The roller may be besmeared with lard and dusted over with flower or oatmeal. In wet weather a sough tile may be set over the hole to keep it dry. I have invented another very simple mouse or rat trap, the difference is only in the size. An old packing box four inches deep for mice, and six inches deep for rats, is divided into lodging rooms four or six inches square.



Each lodging-room has two augur holes into it, the size of a mouse or rat, whichever the trap is intended for, as the rat particularly,

always requires to have a back door for retreat. The boxes may be placed under heaps of straw or corn in barns, sheds, or gardens. A few sheaves of half thrashed oats may be laid over them in the latter places; the place will soon become the rendezvous of the vermin, and on removing the straw or corn, they will be found in their lodging-rooms with their young ones. The box may be 18 or 24 in. wide, and of any length. (fig. 128) 1, 2, are the augur holes for ingress and egress; to prevent either, a false frame or square of hoop iron may be made to drop down over all the holes at once, and the box may then be carried off to a convenient place for the dog *Billy* to try his agility.

JOHN HOWDEN.

NATURAL HISTORY.

ARTICLE XVII.

OBSERVATIONS ON THE ADVANTAGES RESULTING FROM A JUDICIOUS STUDY OF NATURAL HISTORY.

BY MR. JOHN SMITHURST.

IN my last paper, I endeavoured, though inadequately, to point out some of the advantages resulting from a judicious study of Natural History. I was compelled to leave the subject unfinished, for fear of swelling my communication to an inconvenient length. I now, however, hope again to be allowed the liberty of offering a few additional observations, for the consideration of such of your readers, as may think them worth attention. The study of Nature abounds with objects of the highest interest; there cannot be a more rational or more pleasing employment, either for the scholar, the man of business, or for the humble cottager, than that which results from an attentive inquiry, into the infinite wisdom displayed in the formation of all created things. It is not in the animal kingdom alone, we observe the most indisputable evidences of the divine skill and beneficence. The vegetable world, also, affords ample scope for observation and improvement; and it is my intention, as far as I am able, to notice a few of the numberless instances, in which the wisdom of the Deity is peculiarly conspicuous in the admirable construction of vegetable productions. When by the almighty fiat of Jehovah, the earth had been formed, and after the waters had subsided, and the land appeared dry and fit for vegetation, at the divine command, herbs, plants, trees, and the almost endless variety of the vegetable world, began immediately to appear. Thus, before God formed any living creature to dwell upon the earth, he provided abundantly for its sustenance. The great Author of all things intended, that the

whole earth should be covered with plants; therefore, that no place should be without some, he gave to each of them such a nature as might be chiefly accommodated to their own climate. Some are formed to bear the intense heat of the *torrid* zone, whilst others flourish in the colds of the *arctic* regions, amid almost perpetual frosts. Some plants delight in dry ground, some in moist, some are aquatic, whilst others spread their foliage over rocks and precipices, and by their luxuriant verdure, render pleasing the rugged features of mountain scenery. Grasses, the most common of all plants, can bear almost any temperature of air; in this the good providence of the Creator particularly appears; for all over the globe they are necessary for the nourishment of cattle, &c. The vegetable creation is endued with the power of multiplying itself by seeds, slips, &c.: it contains in itself all the rudiments of the future plants, through their endless generations. The celebrated Linnæus, in an "oration concerning the augmentation of the habitable earth," which proceeds on the supposition of a sexual system in the vegetable world, shows how from one plant of each species, the immense number of individuals now existing might arise. He gives some instances of the surprising fertility of certain plants, as of the elecampane (*Corvisàrtia Helènum*), one plant of which produces three thousand seeds; of the poppy (*Papaver*) three thousand two hundred; of the sun-flower, (*Helianthus*) four thousand; of tobacco, (*Nicotiana*) forty thousand three hundred and twenty: and one grain of turkey corn produces two thousand others! But supposing an annual plant producing yearly only two seeds, even of these after twenty years, there would be 1,048,576 individuals. For it is evident, the increase would be according to the geometrical series, 2, 4, 8, 16, 32, &c. the twentieth term of which is 1,048,576. If we connect the vast fecundity of vegetables with their number, how bountiful will the great Author of Nature appear. In the present advanced state of Botanical Science, we are presented with a catalogue of nearly fifty thousand species of plants. Messrs. Humbolt and Borpland, the celebrated travellers, collected in their five years' travels through South America, three thousand eight hundred species of plants; of which upwards of three thousand were new, and altogether unknown before to the botanists of Europe. We are indebted to the exertions of such enterprising and indefatigable naturalists, as graced the last and present centuries, for the many valuable acquisitions, which the science of botany has obtained. The knowledge which the ancients possessed on this subject was very limited, for the whole number of plants mentioned by the Greeks, Romans, and Arabians does not

exceed one thousand four hundred. Theophrastus, a Greek Philosopher, who succeeded Aristotle in his school at Athens, wrote a work, entitled "The History of Plants," in which about five hundred different plants are mentioned. Dioscorides, a physician and botanist in the time of Nero, being nearly three hundred years after Theophrastus, describes about six hundred different plants; Pliny the elder, who lived about the same time, in his voluminous work, entitled "The History of the World," gives descriptions of one thousand different species of plants. The interesting study seems to have been but little cultivated for many centuries, posterior to the time of Pliny; for Bock or Bone, a german, generally known by the name of Trague, in 1532, published a History of Plants, in which he describes only about eight hundred species. It is from the Western hemisphere, we have obtained so many choice and elegant specimens of exotic plants; the vegetable productions of America, exceed in point of number and luxuriance, those of Europe. In North America, for instance, the number of lofty trees is far greater than in Europe. In the former country, there are one hundred and thirty-seven species of trees, whose trunks exceed the height of thirty feet, while in Europe there are but about forty-five species.

There is no subject in Botany more admirable, than a contrivance visible in many plants, to take advantage of good weather, and to protect themselves from bad. They open and close their flowers, and leaves, under different circumstances. Some open to receive the rain, others close to avoid it; some close before sun-set, others after. The petals of many flowers expand in the sun, but contract at night, or on the approach of rain.

Plants, when forced from their natural position, are endowed with the power to restore themselves. A hop plant twisting round a stick, directs its course from south to west as the sun does. Untwist it, and tie it in the opposite direction, it dies. Leave it loose in the wrong direction, and it will recover itself in a single night. Twist the branch of a tree so as to invert its leaves, fix it in that position; if left in any degree loose, it untwists itself gradually, till the leaves are restored to their natural position. What better can an animal do for its welfare? The root of a tree meeting with a ditch in its progress, is laid open to the air. What follows? It alters its course like a rational being, dips into the ground, surrounds the ditch, rises on the opposite side to its wonted distance from the surface, and thence proceeds in its original direction. Lay a wet sponge near a root laid open to the air, the root will direct its course to the sponge. Change the place of the sponge, the root varies its direction. Thrust

a pole into the ground, at a moderate distance from a climbing plant, the plant directs its course to the pole, lays hold of it, and rises on it to its natural height. A honey-suckle proceeds in its course, till it is too long for supporting its weight, and then strengthen itself by shooting into a spiral direction. Comparing these and other instances, of seeming voluntary motion in plants, with that share of life wherewith some of the inferior kind of animals are endowed, we can scarcely hesitate, at ascribing the superiority to the former.

The fertility of the earth, has continued from the creation to the present time. Plants spring up, grow, flourish, ripen their fruit, wither, and at last, having finished their course die, and return to the dust again, from whence they first took their rise. But the earth offers again to plants what it has thus received; for when seeds are committed to the earth, they draw to themselves, accommodate to their nature, and turn into plants, the more subtile parts of the soil; by the co-operation of the sun, air, and rain: so that the tallest tree is, properly speaking, nothing but mould, wonderfully compounded with air and water, and modified by a virtue communicated to a small seed by the creator. From these plants when they die, just the same kind of mould is formed as gave birth to them originally whence fertility remains continually uninterrupted.

That the author of nature had so constituted the world, that none of the elements should be subject to destruction, might have been supposed by the ancients; but till the present advanced state of the science of chemistry, no proof of this interesting fact, could have been adduced. Of the indestructibility of matter, it may be remarked that provision has been made even for the restoration of the fallen leaves of vegetables, which rot on the ground, and to a careless observer would appear lost for ever. Berthollet has shown by experiment, that whenever the soil becomes charged with such matter, the oxygen of the atmosphere combines with it, and converts it into carbonic acid gas, and the consequence of this is, that this same carbon in process of time, is absorbed by a new race of vegetables, which it clothes with a new foliage, and which is itself destined to undergo similar putrefaction, and renovation to the end of time. I might adduce many other facts, but not to trespass longer upon your time I hope the few remarks I have made, though rather miscellaneous, may be the means of inducing some of your young readers, to study Natural History, with a view of obtaining a just conception of the infinite wisdom and goodness of the creator.

“Nature is but a name for an effect,
Whose cause is God.”

PART II.

REVIEWS AND EXTRACTS.

REVIEW.

OUTLINE OF THE SMALLER BRITISH BIRDS.

BY R. A. SLANEY, ESQR. M. P.—*8vo.* FOOLSCAP, 4s. 6d. CLOTH.

THIS we have found a very entertaining little book on our Smaller British Birds, evidently well suited to interest the minds of young persons, for whom it is chiefly intended. Its substance is gathered from some of the best books on those subjects, and is pleasingly blended with many original remarks, and the relation of several very interesting incidents, which led the Author to make some of his observations. Our feathered gentry are divided into three sets:—winter visitors, summer visitors, and sojourners or resident birds. The winter visitors include field-fares, redwings, starlings, cross-bills, winter yellow wagtails, snow-buntings, and mountain finches. It has, we believe, been satisfactorily ascertained, that the snow-bunting and the lesser mountain finch, are one and the same bird, varying only in colour and markings, from a difference in age or sex, or from the effects of the seasons. The *old* males in summer plumage are the snow-buntings; the *young* males and *old* females, are the tawny-buntings; and the great pied mountain finches, and the young birds of the same year, both male and female, are the lesser mountain finches, and bramblins. These differ materially, however, from the common brambling, (*Fringilla montifringilla*, Lin.) which may every winter be met with in company with the chaffinches.

The summer visitors, include about twenty-seven species. The sojourners, include nearly forty of our smaller birds, the families of owls and hawks; also the different tribes of water birds, as the families of ducks, divers, gulls, and waders. It is illustrated with a dozen engravings, and is upon the whole very neatly got up. There is, however, one very important deficiency, the want of an index; had the birds mentioned in the work been arranged together at the end, in a sort of systematic catalogue, with the scientific names, and reference to page, &c. which might have been done in a very small compass, it would have been of much advantage. We think this has been omitted rather inadvertently, as on looking the pages over again, we find page 4 in a note these words, "At the end we insert a systematic catalogue of all those birds within our limits," which seems to prove, that something of the sort was in contemplation. We have not advanced this merely to find fault; for we much approve of the work, and would most certainly recommend it to the perusal of all our young friends, as an interesting companion in their daily walks.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

VARIETIES OF THE PINE APPLE.—(Continued from page 754.) 31. **BLACK SUGAR-LOAF.** The copper-coloured Barbadoes of the Hort. Soc. Cat. No. 25. Fruit, same form as other varieties of the sugar-loaf; colour, darkish purple, slightly mealy before ripening; when ripe light orange. Pips rather above middle size and flat, sometimes a little depressed in the centre, covered one-third by the scales, which end in a very short blunt point. Flesh very pale lemon-colour, rather stringy, very juicy and sweet, with an agreeable pleasant acid. Crown rather large, leaves few, of a purple colour, long and erect. Fruit good in summer, but does not swell freely in winter.

32. **STRIPED-LEAVED SUGAR-LOAF.** The prickly-leaved Sugar-loaf, of Nicol, striped Sugar-loaf of Brookshaw; Green-leaved with purple stripes and spines on the edges of Speechley; Purple striped Queen, Green Sugar-loaf, and Green striped Sugar-loaf of the Hort. Soc. Cat. White Sugar-loaf, striped-leaved from Jamaica, Bird's bye Bahama, and Brown striped Sugar-loaf of some gardens. Flowers very pale lilac. Fruit same form as other varieties of the Sugar-loaf, of a clear palish green colour, and rather mealy; when ripe of a bright yellow; weighs from three to four pounds, of considerable excellence. Flesh deep yellow, semi-transparent, slightly stringy, very juicy and sweet with a slight aroma, but without much acidity. Crown middle-sized, leaves rather numerous, broad, pale green, with dark purple stripes.

33. **TRINIDAD.** Pitch lake of some. Leaves keel shaped, very long and straggling, broad at the base, and tapering to the top, dull green tinged with brownish purple, particularly on the spines and inner leaves, under surface very mealy. Spines remarkably irregular and growing in clusters, they are in the middle degree of strength and thickly set. Flowers lilac. Fruit elongated conical form, the greatest diameters are twelve and a half inches in height, by five and a half inches in breadth; before ripening, dark olive and lightly covered with meal, when ripe dark orange, and slightly tinged with red on the lower part of the pips, which are large, of a roundish form, and only very slightly angular; the margins are rather elevated with their centres depressed, excepting the lower part of the fruit where they are a little prominent. Scales cover about half the pips, and end in lengthened acute points at the lower part of the fruit, but near the summit they are much shorter. Flesh pale yellow, soft, with little fibre, very fragrant, and sweet without acidity, very delicate and highly flavoured. Crown very small, contributing, in continuation from the fruit, to give the whole the sharp termination of a regular cone. Leaves reflexed and considerably tinged with reddish brown. An excellent, and very large growing pine.

34. **BUCKS SEEDLING.** This resembles the Trinidad, except that the leaves are not so robust, considerably paler, more mealy, and entirely free from any tinge of brown or red. nor the spines so strong and irregular. The fruit before ripe paler and more mealy, scales much longer, and of a dull whitish grey colour. Flesh somewhat paler, richer and more highly flavoured juice.

35. **ENVILLE.** Old Enville, Cockscomb, and Enville Sugar-loaf of the Hort. Soc. Cat. Leaves not very long, rather broad and strong, slightly keel-shaped, somewhat recurved, bluish green, remarkably mealy, spines middle sized, thickly set and very irregular. Flowers lilac. Fruit pyramidal, dark purple tinged with brownish red before ripening, and very mealy, cover about one-third of the pips and terminate in lengthened acute points. Pips generally about the middle-size and slightly prominent. Flesh almost white, opaque, soft and melting, without much fibre, juicy, rather rich and sweet with a peculiar and pleasant perfume. Crown small, often Cockscomb shaped. A good pine, from four to seven pounds, and swells well in the winter.

36. **NEW ENVILLE.** Leaves differ from the last in being less mealy, spines stronger and more regular. Fruit similar in both appearance and quality, to the Enville.

37. **SPRING GROVE ENVILLE.** Leaves short, broad and flat, with revolute edges of a bluish green colour, much tinged with brownish purple, and rather thickly covered with meal. Spines middle-sized, rather thickly set and regular. Flowers lilac. Fruit pyramidal, very broad at its base; before ripening dark green and rather mealy, when ripe dark yellow. Pips middle-sized, rather flat and somewhat depressed in the centres. Scales covering rather more than half the pips, and terminating in very short points. Flesh very pale yellow, slightly fibrous, very juicy and rather sweet, but not highly flavoured. Crown very small, leaves not numerous, weighing from three to four pounds, but not of much worth.

38. **LORD BAGOT'S SEEDLING.** Leaves short, broad and flat, bluish green and thickly covered with meal; spines middle-sized and rather irregular. Flowers lilac. Fruit bluntly pyramidal, before ripening, dark greenish purple and thickly covered with meal; when ripe pale yellow. Flesh white, opaque and firm, with scarcely any fibre, very juicy and highly flavoured. Crown small, leaves not numerous.

39. **BLITHFIELD ORANGE.** Leaves resemble those of the Enville, but are much weaker and less mealy. Fruit rather broader at the top than that variety; pips somewhat larger and less mealy, colour when ripe bright ochre. Flesh pale yellow, rather soft and melting with a pleasant highly flavoured juice. Crown small, leaves not numerous.

40. **BLACK ANTIGUA.** Brown Antigua of Speechly and Hort. Soc. Cat. Jagged-leaf Black Antigua, of Brookshaw, and Wortley's West Indian, of some gardens. Leaves very long, narrow and acute, rather spreading, of a clear bluish green, the inner leaves much tinged with a pale brown, upper surface slightly mealy, lower surface very mealy. Spines large, far apart and regular. Flowers purple. Fruit cylindrical, inclining to oval; before ripening of a dull purple green and thickly covered with meal, when ripe dark ochre; a most delicious and highly flavoured fruit, it should be cut on its first appearance of changing from green to yellow, an observation which is applicable to all those sorts abounding with juice. Pips very large and prominent. Scales covering rather more than one-third of the pips, and terminating in short blunt points. Flesh pale yellow, slightly fibrous, rather soft and melting, with a pleasant acid, remarkably juicy, sweet and highly flavoured. Crown small, leaves few and erect.

41. **WELBECK SEEDLING.** Crown, Hort. Soc. Cat. and Prickly Providence, of some gardens. Leaves long, slender and spreading; broad at the base and

tapering to a very acute point of a dull green and only slightly mealy. Spines large, far asunder and regular. Flowers small, dark purple. Fruit somewhat cylindrical, generally broader at the top than at the base, before ripening dark olive; when ripe pale lemon-colour; very mealy on the centre of the pips, which are large, flat, rather wrinkled and depressed in the centre. Scales covering nearly half the pips, ending in short blunt points. Flesh very pale yellow, almost white, semi-transparent, melting, and juicy, slightly acid, with a rich agreeable flavour. Crown rather large, sometimes cockscomb shaped, leaves not very numerous. A very good Pine.

42. **RIPLEY.** Old Ripley and Heaton House Montserrat of Hort. Soc. Cat. Montserrat of Nicol; Indian Black of St. Vincents, and Brown Sugar-loaf of some gardens. Leaves broad, rather long, and slightly recurved, dark green, much tinged, with reddish brown, and mealy on both surfaces. Spines middling strong and irregular; margins reflexed and sometimes a little waved. Flowers purple. Fruit roundish ovate, sometimes rather cylindrical, slightly compressed at either end; before ripening very deep green, and thickly covered with meal on the middle of the pips, when ripe of a pale copper colour. Pips rather above the middle size and rather prominent; scales covering about one half the pips and terminating in lengthened acute points. Flesh pale yellow, opaque, very sweet and rich, firm and crisp, not stringy, and of a very agreeable flavour. Crown about the middle size, leaves rather numerous and spreading. Grows from three to five pounds, and is excellent for winter forcing.

43. **RUSSIAN GLOBE.** Leaves rather short and broad, somewhat keel-shaped, spreading and a little furrowed; of a dull green, much tinged with a dark brown, slightly mealy. Spines long, thinly set and regular. Flowers lilac. Fruit globular, sometimes tapering to the summit, before ripening dark purplish green and thickly covered with meal, when ripe darkish orange, inclining to a copper colour. Pips large, flat, and a little depressed in the centre. Scales covering about one-third of the pips, which end in long acute points, closely adhering to the fruit. Flesh of a clear yellow, slightly fibrous, very juicy and sweet, with a rich highly perfumed flavour. Crown rather large, leaves broad and spreading. An excellent pine, weighing from three to five pounds.

44. **RUSSIAN COCKSCOMB.** Leaves strong, broad, short and somewhat furrowed, slightly spreading and rather flat, with revoluted margins of a bluish green and very lightly tinged with brown, very mealy. Spines rather strong far asunder and regular. Flowers lilac. Fruit globular, rather tapering to the summit; before ripening of a dark green and rather mealy, when ripe pale orange. Pips rather above the middle size and flat; sometimes having small tubercles at some of the angles. Scales covering nearly one half the pips, ending in long blunt points which adhere closely to the fruit. Flesh pale yellow, rather transparent, very juicy and sweet with a rich pleasant acid. Crown rather small, leaves broad and spreading. An excellent summer fruit weighing from four to six pounds.

45. **QUEEN.** Old Queen, common Queen, narrow-leaved Queen, and broad-leaved Queen of the Hort. Soc. Cat. And Ananas Ordinaire of the French. Leaves very short, broad and stiff, somewhat spreading and keel-shaped of a bluish green and thickly covered with meal. Spines strong, rather far apart and regular. Flowers lilac. Fruit cylindrical, before ripening a lightish green and mealy; when ripe a rich deep yellow. Pips rather below the middle size and a

little prominent. Scales covering rather more than one-third the pips, ending in lengthened points. Flesh pale yellow, very slightly fibrous and melting, remarkably juicy and sweet, with a rich pleasant acid. Crown middle-sized, leaves numerous and a little spreading. A valuable pine, weighing from three to five pounds.

A DETACHED FUMIGATOR, (Fig. 129) which will fit any pair of common bellows, is manufactured by Messrs. Warner, and sold to the trade at a very moderate price.

129.



RAPID MODE OF RAISING EXCELLENT VINE PLANTS. At the pruning season, leave a shoot of strong young wood, over and above what may be wanted for training, of a sufficient length to bend down as a layer into a pot; and also for training it during its growth. When the vine begins to push, displace all the buds from the shoot intended for laying, except the leading one. When this is grown to about eight inches or one foot long, bend it down to the pot, and lay it so that the top joint, whence the young shoot has sprung, may be fixed with a strong crook at about one inch under the surface of the mould. As soon as it begins to take root, weaken its resources from the mother plant, by making an incision in the wood behind the pot, which enlarge by degrees, as fast as the young plant will bear it, until it be quite separated from the old one.—T. RUTGER.—*Gard. Mag.*

FLORICULTURAL INTELLIGENCE.

CULTURE OF THE *OXALIS FLORIBUNDA*.—These plants have singular fleshy roots, quite different from the other species of the same genus, and possess extraordinary beauty when in flower. On examining the root of a good plant, many growing buds will be perceived; take off two or three of these buds, with part of the fleshy root, and insert them in sand under a bell glass. Give them a little water and place them in front of the stove, where they will have as much light as possible; in 10 days they are ready to pot. Water the cutting pot, and then turn them out, and plant one in each pot, in a mixture of vegetable mould and peat. After potting give them a little water, and place them in a shady part of the house, till the heart leaves begin to grow, then expose them to the light; in March remove them to the greenhouse, where they can have plenty of air, and in May turn them out into the border, where they will flower till October, when they should be again potted and placed in the greenhouse till next year.—*Gard. Mag.*

NEW AND VERY RARE PLANTS, figured in the Botanical Periodicals for October

CLASS I.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

BERBERIDÆ.

EPIMEDIUM DIHYLLUM.—Two-leaved Epimedium. A curious plant with bluish white flowers. Native of Japan. Received by Messrs. Loddiges from the Leyden Garden. Culture—It appears to be quite hardy, and should be potted in light loam, and increased by dividing the roots.—*Lodd. Bot. Cab.*

PITTOSPOREÆ.

PITTOSP'ORUM ANGUSTIF'OLIUM.—A plant of delicate habit, with a few straggling slender branches. Native of New South Wales, whence it has lately been introduced. Flowers bright yellow. Culture—It must be kept in the greenhouse, and may be increased by cuttings. The soil should be loam and peat.—*Lodd. Bot. Cab.*

BROMELIACEÆ.

ÆCHM'EA MERTE'NSII.—Mertens' Æchmea. Native of Demerara, where it grows parasitical on trees. Introduced by C. S. Parker, Esq. whilst on a visit to that country. Flowers growing in yellow green spikes, the petals are of a bright and deep rose colour, the tips of which are seen above the yellow green sepals of the Calyx, which gives it a pretty effect.—*Bot. Mag.* Culture—It must be kept in the stove, and will probably thrive in rich mould and peat mixed together.

SCROPHULARINÆ.

CALCEOL'ARIA MARTINEA'UÆ.—Miss Martineau's, Slipperwort. An hybrid raised from *C. Fothergilla*, fertilized by *C. corymbosa*, by Mr. Blair, Gardener to John Martineau, Esq. at Stamford Hill, and was named in compliment to Miss Martineau, a young lady of great botanical taste. Flowers bright yellow, blotched with dark velvet spots; very showy. Culture—It flowers freely in the open border from April to August, requires a light rich earth, and is increased by parting the roots.—*Sweets Brit. Fl. Gard.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

STANHOPEA EBURNEA.—Ivory-lipped Stanhopea. An Epiphyte of considerable beauty. Flowers slightly fragrant, and of short duration; the lip when fresh like highly polished ivory. Native of Rio Janeiro, whence it was received by Messrs. Loddiges.—*Bot. Reg.* Culture—It may be potted in peat mixed with a portion of rotten wood, and should be kept in the stove.

CYMBI'DIUM MARGIN'ATUM.—An air plant with bright yellow flowers, margined with red. Native of Rio Janeiro, whence it has been received by the Horticultural Society. Culture—See treatment of *Maxillaria gracilis*, p. 714. which is either the same plant in a sickly state, or a very nearly allied species. Young plants may be obtained by dividing the creeping stem, when the pseudobulbs will establish for themselves an independent life, by means of the little white and green roots.—*Bot. Reg.*

CYPRIP'E'DIUM MACR'ANTHOS.—Large flowered Lady's Slipper. A beautiful species with a fine purple flower. Native of the Northern parts of Asia, as far as 58 deg north latitude. Gmelin found it in all Siberia. Amman met with it blossoming beautifully in June in a birch wood, on the eastern bank of the Irtisch, above the Tartar village of Tebendrinsk. It has been frequently introduced by Dr. Fischer and other Russian botanists, but hitherto has been but partially preserved. Culture—At the Horticultural Societies Gardens, Mr. Lindley tells us, the one figured grew in a peat border, under a north wall, but appears to have perished.—*Bot. Reg.*

ONCIDIUM CRISPUM.—Curled flowered *Oncidium*. Flowers yellow and velvety brown-red, elegant in form. Native of Brazil, from whence it has lately been introduced. Culture—It must be preserved constantly in the stove, and potted in vegetable earth and moss, with bits of broken pots intermixed. Like the other kinds it will admit of occasional increase by separating its roots.—*Bot. Cab.*

IRIDEÆ.

ANOMATHECA CRUENTATA.—Bloody-flowered *Anomatheca*. Flowers of a bright red. Native of the Cape of Good Hope, from whence it was lately introduced. Culture—It may be kept in a pot in the greenhouse, or will thrive if planted in a border, close to the front wall of a stove. The soil should be sandy peat. Like most of this family it increases by offsets of the bulbs, or by seeds which ripen freely.—*Bot. Cab.*

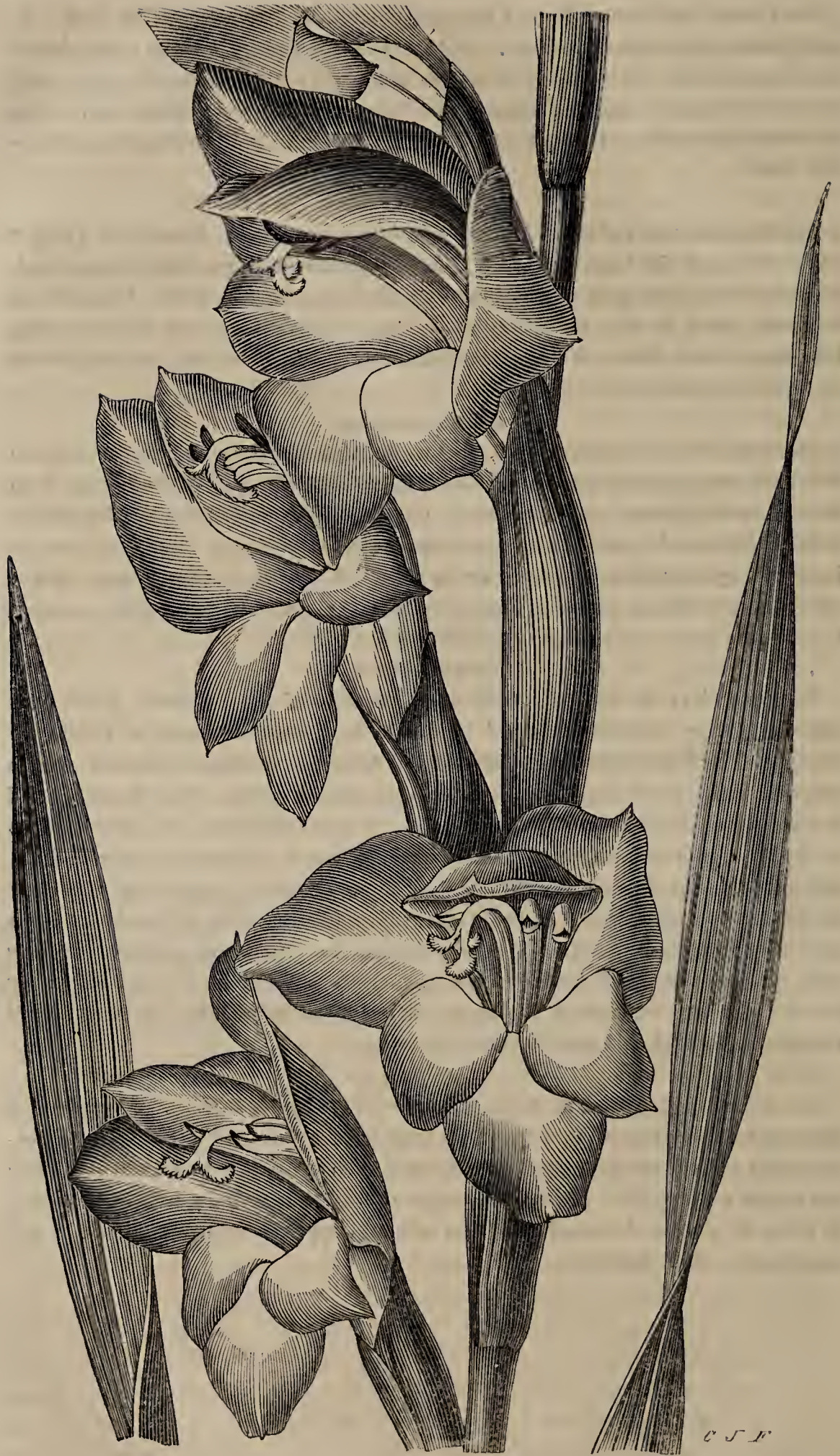
AMARYLLIDÆ.

ALSTROMERIA OCULATA.—Purpled-eyed *Alstrœmeria*. A climbing plant with rich rose-coloured flowers; handsome; received by Messrs. Loddiges, from Mr. George Eglington, of Valparaiso. Culture—It should be kept in the greenhouse, and potted in peat and loam, with one-third of rotten-dung, and may be increased by separating the roots or by seed. It is thought that it may endure the climate of this country, as many of the other kinds do, planted in a border, close to the front wall of a stove.—*Lod. Bot. Cab.*

ASPHODELEÆ.

TRICHOPE'TALUM GRA'CILE.—Slender *Trichopetalum*. Flowers green and white, and very feathery. Found by Mr. M'Reae near the baths of Colina, in Chile, and by him sent to the Horticultural Society. Culture—Planted in rich soil, and under good cultivation it rises to the height of three feet, flowering and seeding abundantly from June to August. It succeeds better if committed to the open ground in a frame or pit, well drained, has a southern aspect, and from which the frost is entirely excluded. In such a situation exposed to the open air all summer long, it will form its leaves in perfection, and will not lose them until they have completely fulfilled the purpose for which they are created. This is the only way in which Cape roots can generally be cultivated successfully; for few of them are capable of living, or at least of flourishing so far north of London, if treated as hardy plants.—*Bot. Reg.*

CULTURE OF *GLADIOLUS NATALENSIS*.—(Fig 130) Bulbs of this splendid plant was received by Messrs. Loddiges from the Leyden Botanic Garden. Flowers bright yellow, richly striped and spotted with vermillion and light red. See our notice of it p 315. It bore the winter of 1830-31 perfectly well out of doors, in front of a stove, in sandy peat and soil, and appears to increase itself by offsets freely.—*Lod. Bot. Cab.*



ARBORICULTURAL INTELLIGENCE.

HORSE CHESNUT.—The wood of the horse chesnut (*Æsculus Hippo-castà-num*) makes very durable stakes for vines. *A'lnus glutinòsa* appears to grow more rapidly in light sandy soil, than the birch (*Betula alba*) when placed in similar situations.

QUE'RCUS COCCINEA AND Q. R'UBRA—The first of these trees has been known for upwards of fifty years in the park at Worlitz; and specimens are there to be found one hundred feet in height. There are four distinct varieties of the species coccinea, differing in the colour of their leaves, and in their greater or less productiveness of acorns. All of them are remarkably ornamental, from the deep red of their very late falling leaves, especially in autumn, and when the trees appear among the dark foliage of the pines. The timber is extremely firm and tough; and so suitable for furniture, that, when varnished, it becomes as dark as mahogany. *Q. rubra* does not form so large or so handsome a tree as the scarlet Oak; but it is still very beautiful, and deserves a place in every plantation. It requires rather a moist soil.—M. SCHOCH, WORLITZ GARDENS.—*Pruss. Gard. Soc.*

TAMARISK planted by cuttings in the spring, in driving sands on the sea shore, will immediately take root; and the falling leaves in a few years will fix the sands. Sea weed may also be collected and spread over the sand, which the stems of the tamarisk would hold in their place. Tamarisk may be cut every spring, and thus yield an annual profit. The wood is heavy and good to burn.—*Gard. Mag.*

NATURAL HISTORY.

FOOD OF BEES IN NORTH AMERICA.—The American black willow and the red maple are the first trees that are visited by bees. They are fond of the crocus, which is the earliest of our bulbous roots. The stercory, and piggery are next resorted to, and the extract absorbed from them, must be used a tonic. Blossoms of all kinds, except those of the red clover and honey-suckle, are excellent food; and the bees especially profit by the increased attention bestowed at present on the culture of the peach tree in some parts of America. They not only drink the nectar, and collect the pollen of the flower, but they appropriate the peach itself. The scent of bees is so acute, that every flower which has a powerful odour can be discovered by them at a great distance. Strawberry blossoms, mignonette, wild and garden thyme, herbs of all kinds, apple, plum, cherry; and above all, raspberry blossoms, and white clover, are delicious food for them; and a thriving orchard and apiary fitly go together.—*Mag. Nat. Hist.*

MODE OF DECOYING WILD PIGEONS IN NEW ENGLAND, NORTH AMERICA. The flight and stool pigeons as they are called, are prepared by passing a thread through the edges of both their eye-lids, which are thus closed; their legs are booted, and the flights being fastened to long strings, are thrown into the air,

and fly as far as they are permitted: while the stool pigeon is tied to a narrow board, which, at the end, when the bird is fixed, rises and falls; and both kinds of decoy, by flapping their wings, draw the attention of the passing flocks of wild pigeons, which are thus made to alight on prepared ground within reach of the concealed spring-net, or on a long pole rising a little from the horizontal line, so as to give the greatest effect to the discharge of the gun from the bush-house which conceals the sportsman. The net concealed by cut grass is sprung by a rope, which is pulled the moment after the pigeons alight upon the prepared ground.—*Silliman's Journal*.

ANALYSIS OF GUMS.—M. Guérin has analysed several varieties of gums with the annexed results. Arabin, which constitutes the greater portion of gum arabic, is composed of

Carbon.....	43,81
Oxygen.....	49,85
Hydrogen.....	6,20
Azote.....	,14

100,000

The Azote is considered non-essential. Gum arabic was found to consist of

Arabin.....	79,40
Water.....	17,60
Ashes.....	3,00

100,00

Messrs. Gay-Lussac and Thenard found its composition to be

Arabin.....	84,16
Water.....	13,43
Ashes.....	2,41

100,00

The difference of water found, depended upon the different methods of drying. The gum in this analysis was dried at 212 deg. in the air, while M. Guérin dried it at 257 deg. *in vacuo*, which accounts for the larger quantity of water obtained by him. The quantity of ashes found by M. Guérin is the same as that procured by Vauquellin; they consist of carbonate of potash, chloride of potassium, oxide of iron, allumina, silica, and magnesia.

GUM SENEGAL.—100 parts of this gum treated with 500 of nitric acid gave 16,70 parts of mucic and oxalic acids. It is composed of

Arabin.....	81,10
Water.....	16,10
Ashes.....	2,80

100,00

Its composition is therefore essentially the same as gum arabic.

MUCILAGE OF LINSEED.—The soluble part of linseed is composed of

Arabin and azotized matter.....	67,50
Water.....	14,00
Ashes.....	18,50

100,00

BASSORA GUM.—This gum swells much in water; treated with boiling alcohol it yields chlorophylle, a substance resembling wax, acetate of potash, chloride of calcium and supermalate of lime. It is composed of

Arabin.....	11,20
Bassorin.....	61,31
Water.....	21,89
Ashes.....	5,60

100,00

BASSORIN is solid, colourless, semi-transparent, insipid, inodorous, uncrystallizable, and difficult to powder. It is insoluble both in hot and cold water, but it absorbs it and swells considerably; it is also insoluble in alcohol, and does not undergo the vinous fermentation. 100 parts treated with 1000 nitric acid gave 22,61 of mucic and oxalic acids. When treated with sulphuric acid it gives a crystallizable matter, which has a sugary taste, but does not form spirit by fermentation.

BASSORIN is prepared by washing Bassora gum with a large quantity of cold water repeatedly, until it ceases to dissolve any thing. The residue is then to be allowed to drain, to be dried in cloth, and the water is to be finally separated by exposure to a salt-water bath in a silver capsule. Bassorin is composed of

Carbon.....	37,28
Oxygen.....	55,87
Hydrogen.....	6,85

100,00

The soluble part of Bassora gum is similar to Arabin; 100 parts of water at 68 degrés dissolve 17,28 parts, and at 212 degrees 22,98 parts; 100 parts heated with 400 of nitric acid, gave 15,42 mucic acid and oxalic acid. The soluble part, or arabin of this gum gave by analysis:

Carbon.....	43,46
Oxygen.....	50,28
Hydrogen.....	6,26

100,00

It is, therefore evident that it is identical with Arabin.

The insoluble portion of Bassora gum, consists of Bassorin, mixed with phosphate of lime, silica, oxide of iron, and magnesia.

GUM TRAGACANTH.—Its sp. gr. is 1,384, when heated to between 125 degrees and 145 deg. Fahr. it is more easily powdered than at common temperatures. It swells prodigiously when put into water and when boiled in water and treated with iodine, starch is shown to be present. It is composed of

Arabin.....	53,30
Bassorin and Starch.....	33,10
Water.....	11,10
Ashes.....	2,50

100,00

Ann. de Chim. et de Phys.

PART III.

MISCELLANEOUS INTELLIGENCE.

I. QUERIES, ANSWERS, REMARKS ETC.

ON SCARIFYING FRUIT TREES.—Never having paid much attention to the management and cultivation of fruit trees, I was lately much astonished on noticing for the first time, an operation which had been performed on a number of young standard trees, planted about four years since, in a small orchard belonging to a friend of mine. I allude to the practice of dividing the bark in a perpendicular line, commencing from immediately below the first branches, and continued to the base of the stem; the knife penetrating at the same time, through the outer bark and the *liber* to the wood. Upon enquiring into the utility of this process, I was told, that it allowed the wood to swell and expand; that if the bark be not separated in this manner, it confines and cramps the energies of the tree, and consequently retards its growth, and impedes increase in bulk. Then again, it is said, this operation secures a vent to the exuberance of sap, which, if confined, would be injurious to the tree. These reasons are so puerile, so contradictory, so worthless in the way of argument, and so easily proved to be untenable, that I am constrained to suppose, that the practice can be supported upon other and far better principles; more especially, as I am informed, that there are men, who are esteemed to be good gardeners, who approve of and follow it. I can claim but little acquaintance with the science of vegetable physiology, still this operation appears to me to outrage every principle of that science, and reasoning from analogy, to be wholly inconsistent with nature. The question is simply this, can it be supported upon right principles? Is it beneficial, or otherwise? It will readily be seen to which side of the question my sentiments lean; but as I can only maintain them by mere hypothesis and abstract reasoning, and cannot speak from experiment and actual observation, I am desirous of further information *pro* and *con*, before I venture to form a *decided* opinion. Therefore I should feel obliged if G. I. T. and other correspondents of the Register, who may be qualified to speak on the subject, would favour me with their opinions.

G. A. L.

July 25th, 1832.

HARD WATER, GREAT PROMOTER OF THE GROWTH OF PLANTS.—I was reading this morning, the introduction to Parkes's Chemical Essays, "according to Doctor Home, hard water promotes the growth of Plants, in a much greater degree than soft water." This naturally surprised me, and I would fain know the Doctor's reasons; but being unable to apply to the work itself for information, in consequence of my ignorance of its name, I am induced to hope, that one of your scientific readers, will do me the favour to enlighten me on a subject, that must be of importance to all Horticulturists, more especially to a tyro like your humble servant,

PAX.

RHUBARB PLANTS.—My Rhubarb bed of green Giant and scarlet Goliath, was last year the admiration of this district, near Heney; many of the leaves measuring four feet in length, and the stems between five and six inches in circumference; the latter too, retaining their delicate pulp-like texture, where dressed throughout the summer and far into October.

This year, however, almost all the roots appear to have changed their character; they have thrown up a forest of tiny stalks, not thicker than my little finger, which possess, in addition to the above ill quality, that of being tough and stringy, or rather wiry, my tarts having more resembled hay than rhubarb. Do you suppose, gentlemen, that I have injured my roots, by having continued to cook them through the last summer?

I have but slender abilities in Horticultural matters, and hope for your indulgence, and the favour of a reply. RHEA.

ERYTHRINA CHRISTA GALLI.—Having had the Erythrina Christa Galli in my possession nearly four years, and with every advantage which the stove and green house afford, not having made, amidst its luxuriance, the smallest approach to bloom; I should feel much obliged, to be made acquainted through the medium of the Horticultural Register, of the best method that may encourage some prospect of success in this respect. A FLORIST.

RHUBARB PLANTS.—In answer to the enquiry of your correspondent T. (Hort. Reg. page 666,) I have to observe, that it is, I believe, an ascertained fact, that allowing plants to seed has an exhausting effect, as well upon the plants themselves, as upon the soil they grow in. Some, which if prevented from seeding, would prove perennial, uniformly die the following winter, if allowed to seed. Others, if raised too late to blossom the year in which they are sown, are well known to produce more vigorous plants, and consequently finer flowers, the year following.

Applying this principle to my Rhubarb, I remove its blossom buds in their earliest infancy, except when I wish to perfect a few of its seeds: this, however, I have nearly attempted, as like the potatoe, it is much more speedily propagated through the medium of its roots, than by sowing the seed.

Whenever I have allowed a Rhubarb plant to ripen its seed, I have found it suffer in the vigour of its leaves, not only during the year of its flowering, but on the following year also. EDWD. BEVAN.

Ferry Side, Aug. 4th, 1832.

GLYCINE SINENSIS, AS A FRONTISPIECE FOR THE VOLUME.—As the first Volume of the *Horticultural Register* will close next December, I beg to suggest, than an Engraving conveying the representation of some beautiful flower, belonging to a plant of easy cultivation, may accompany the number of that month, for the particular purpose of being bound up, as the frontispiece to the work: and should this suggestion be approved of, I beg to name the perennial climber, the Glycine Sinensis, as having great claim from its elegantly formed clusters of beautiful bright-blue flowers to this distinction: but as some of your readers may give a preference to other flowers, and as the decision may require some consideration from yourselves, I have placed the hint in train, while December is still at some distance, that there may be ample time for that purpose accordingly. A SUBSCRIBER.

BUDDING ROSES.—Permit a *Subscriber* to enquire respecting the best method *Budding* Rose Trees, as well as the best time, and sort of bud likely to strike the best; having attempted it on several common white or dog rose trees, according to the plan laid down in Loudon's *Encyclopædia of Gardening*, &c. but without success since July, and no symptom of the buds striking have yet appeared, on the contrary, a dark dry withered appearance.

Perhaps you would afford a clearer account of the method, descriptive and plain, and the appearance likely to be assumed if the bud strikes; how much besides the bud may be used, &c. &c. J. THOMPSON.

Imfolk, Sept. 12th, 1832.

PRESERVING GERANIUMS THROUGH THE WINTER OUT OF DOORS.—I should feel exceedingly obliged to any of your correspondents, if they would have the goodness to inform me of the *least troublesome and expensive* method of preserving the Geraniums which have been turned out of pots, and placed in open borders through the winter; and whether it can be done *without repotting them*.

My greenhouse is not large enough to admit them, in addition to the regular stock of Geraniums in pots: yet to make the borders handsome, it is necessary to have some dozens of scarlet Geraniums. It is my request to be informed, how I can best protect them through the winter months. Would they do, if carefully taken up, the earth shaken off their roots, and packed in boxes kept in the temperature of the cellar? I am speaking of a case, where neither greenhouse nor frames can be afforded for them. Should they be cut down? would they do, if buried in sand or saw-dust? As the winter is coming on, an *early* answer to this question would be gratefully received. J. MITFORD.

Sept. 1st, 1832.

CULTURE OF POMEGRANATES WANTED.—I should be much obliged by your giving, in an early number, some instructions for the treatment of the Pomegranates single or double, with a view to their free flowering. I have two fine trees against a south wall, very strong and flourishing, but I cannot succeed in obtaining many flowers from them. I have tried every method I could think of.

Petersham, near Richmond, Surrey, }
Sept. 17th, 1832. }

A SUBSCRIBER.

II.—COLLECTIONS AND RECOLLECTIONS.

MOVEMENT OF SHELL FISH.—The fresh water muscles, which are common in rivers and canals, are not, as might be supposed, immovably confined to the spot where they may chance to be produced. The organ with which they effect the movements is of a fleshy substance, about two-thirds of the length of the shell and thrust out through the opening near its middle. This foot, as we may term it, is about half an inch broad in the large shells, and sharp at the point. In order to move themselves from place to place, they thrust this organ under the shell, applying it with a quick motion to the bottom of the place where they lie, by which means they can, not only change their place, but turn themselves upside down.—*Notes of a Naturalist.*

FALL OF THE LEAF.—It is not enough to account for the fall of the leaf to say, it falls because it is weakened and dead, for the mere death of a leaf is not sufficient to cause its fall, as when branches are struck by lightening, killed by a bleak wind, or die by any similar cause, the dead leaves adhere tenaciously to the dead branch. To produce the natural fall of the leaf, the branch must continue to live, while its leaves die, and are thrown off by the action of its sap vessels. The change of temperature, from hot to cold, seems to be one of the principal circumstances connected with the death and fall of the leaf. Hence it is, that European trees, growing in the southern hemisphere, cast their leaves at the approach of winter there, which is about the same time of the year that they put them forth in their own climate. The native trees of the tropics are all ever-greens, and like our hollies, and pines, have no general fall of the leaf, yet there is always a partial fall proceeding, and at the same time a renewal of the loss.—*Times Telescope, Notes of a Naturalist.*

III.—MONTHLY HORTICULTURAL CALENDAR.

FOR NOVEMBER.

This month is remarkable for foggy damp weather, greenhouse plants &c. must receive no water except when the soil becomes quite dry and then some should be allowed to fall upon the leaves or they will be very liable to damp off, give as much air as possible every day, and keep the place perfectly dry. Make use of every fine day to gather any remaining late pears or apples hanging on the trees. Lay a quantity of litter or half rotten horse dung about the roots of the trees planted last month. Collect soils for different purposes, and begin to make every preparation for winter. As the ground becomes vacant let it be trenched in ridges to stand more exposed to the action of the weather. Some hardy trees as cherries, plums, &c. may now be pruned, but peaches, nectarines, apricots, and the like are better deferred till towards the spring.

FRUIT DEPARTMENT.

Peach and Nectarine Trees on the walls where most of the leaves are falling, may be slightly brushed upwards with a small birch or link wisk to clear the branches off them, afterwards draw most of the nails as recommended page 240, for their general treatment see pages 18, 192 480, 531, 673, and 721.

Apricots will require similar treatment to peaches. The moor park apricot is very liable to be infected with canker; for Mr. Lindley's remedy, see p. 164.

Cherry and Plum Trees may now be pruned.

Gooseberry and Currant Trees may also be pruned, leave a good supply of young wood in them. This is also the proper time for manuring them, if the land in which they are planted be strong, horse-dung and light fresh soil should be used; but if light, cow-dung and fresh soil. See Mr. Muscroft's observations, p. 203.

Strawberries in Pots may now be introduced into the forcing houses, the first crops however set better if the pots are placed in hot bed made for the purpose, see p. 240. Geo. Harrison's observations, see p. 395.

Grapes, Vines in pots, now brought into the Vinery, will ripen their fruit about the beginning of April, see p. 6, 185, 490, and 536, keep those intended to be trained on the rafters fully exposed to the open air, until the time appointed to force them. Mode of pruning is noticed, p. 338, and the culture is practised in France, p. 341.

FLOWER DEPARTMENT.

Hyacinths should be planted, as recommended, p. 588.

Tulips should now be planted, p. 105.

Ranunculuses now planted in frames will flower in March and April, also prepare the beds for planting them in March, p. 196.

Dahlias will now require taking up, p. 147.

Chrysanthemums in the green-house will now require abundance of air to prevent the flowers from expanding weakly.

Mignonette and Ten Week Stocks sown in August must have as much air as can be given them by day, and well secured from frost by night.

Roses now brought into the forcing houses will flower in February, p. 248. Also stocks on which to bud for tree roses should now be planted.

American Plants in exposed situations, if the winds are very cutting, should have a few laurel branches stuck about them to protect them.

Prepare mould for Carnations, &c. as recommended p. 199.

VEGETABLE DEPARTMENT.

Cauliflowers fit for use, if the weather proves frosty, should be dry up and taken to the shed or cellar, as recommended p. 240. Give plenty of air to those pricked out in frames, &c.

Endive must also be taken up as soon as the frosts are severe, and blanched in a shed or cellar.

Lettuce plants may still be pricked out in frames, if enough were not done last month.

Peas and Beans sown this month, will have a better chance to stand the winter, than those sown last month; about the second week, sow some in small pots, to force for an early crop.

Asparagus beds must now have their winter dressing, p. 73. Plant strong roots in hot-beds for forcing, see p. 240.

Raddishes may now be sown in hot-beds for the first crop.

Artichokes must now have their winter dressing.

Sea Kale should now be covered with pots, and litter to blanch it for the table.

THE HORTICULTURAL REGISTER.

DECEMBER 1ST, 1832.

PART I. ORIGINAL COMMUNICATIONS.

HORTICULTURE.—ARTICLE I.

LIST OF ALL THE BEST FRUITS IN CULTIVATION.

AGREEABLE to our promise made in the introduction, we present our readers with a general list of all the best fruits and vegetables in cultivation; it will be easily seen, we have only selected those we conceive to be the very best. Those marked with a * are such as we would recommend, where a selection is required for a small garden in the southern or midland counties, and those marked with a † we conceive suitable for the northern counties of Scotland.

TABLE APPLES.—SUMMER USE.

* Bowyer's Russet, fruit small, excellent bearer, ripe September and October.

Devonshire Quarrenden, middle-sized, good bearer, and rich fruit, ripe in August and September.

Dutchess of Oldenburgh, middle-sized, deserves to be cultivated, ripe in September and October.

† * Early Julien, small, rich flavoured, ripe in Aug. and Sept.

Irish Peach Apple, middle-sized, very excellent, ripe in August and September.

* Leyden Pippin, middle-sized, a profuse bearer, ripe in August and September.

Longville's Kernel, middle-sized, a good bearer, and ripens in August and September.

Maiden's Blush, large, excellent quality, ripens in September.

† * Margaret, middle-sized, high-flavoured, good bearer, ripens in August and September.

† * Oslin, middle-sized, peculiarly rich fruit, ripens from August to October.

* Summer Golden Pippin, small, fine dessert fruit, ripe in August and September.

Summer Thorle, middle-sized, very good, ripe Aug. and Sept.

Summer Pearmain, middle-sized, excellent, ripe in September.

White Juneating, small, old but handsome good fruit, ripe in July.

White Astrachan, middle-sized, excellent bearer, ripe in September and October.

Yellow Ingestrie, small, profuse bearer, ripe in Sept. and Oct.

TABLE APPLES.—AUTUMNAL USE.

† * Early Nonpareil, small, fine flavoured, in use from Oct. to Feb.

Barcelona Pearmain, middle-sized, ripens in November, requires to be planted in a good situation, or against a wall.

† * Court of Wick, small, handsome, of very excellent quality, superior in many respects to the Golden Pippin, ripens in October, and continues in use till March.

Downton, small, excellent bearer, in use from October to January.

Dutch Mignone, middle-sized, fine quality, in use from November to April.

Essex Pippin, small, resembles the Golden Pippin, in use from October to February.

† * Fearne's Pippin, middle-sized, profuse bearer, in use from November to February.

Fenouillet Rouge, small, rich and highly-flavoured, in use from November to March.

Forman's Crew, small, resembles a large Golden Pippin, in use from November to April.

† * Franklin's Golden Pippin, middle-size, rich fruit, in use from September to January.

† Golden Reinette, middle-sized, of first rate excellence, ripe in October, in use till January.

Golden Russet, middle-sized, requires a good situation, in use from November to March.

Grise, middle-sized, very good, in use from November to March.

† * Hughes's Golden Pippin, small, very excellent, in eating from October to February.

Herefordshire Pearmain, large, an established sort, in use from November to March.

Hormead Pearmain, middle-sized, a good bearer, in use from October to March.

Hubbard's Pearmain, small, very rich flavour, in use from November to April.

Isle of Wight Pippin, small, good, but rather a shy bearer, in use from October to January.

† * King of the Pippins, middle-sized, very excellent, and handsome, in use from October to January.

† * Margil, small, flavour like the Ribstone Pippin, in use from November to February.

Morris's Nonpareil Russet, small, very good, in use Nov. to Feb.

Nonsuch Park, small, resembles the golden pippin, in use from November to February.

Nine Partner's Little Russet, small, in use from Nov. to March.

Old Golden Pippin, small, requires a wall, in use Nov. to Apl.

† * Padley's Pippin, small, shrivels if not packed in fern or sand, in use from November to January.

† * Pine Apple Russet, middle-sized, very juicy and fine flavoured, in use from October to January.

† Pearmain Adams's, middle-sized, very handsome and good, in use from November to February.

Pearmain Scarlet, middle-sized, good bearer, in use, Sept. to Jan.

Pome-poire, Old, small, deserves to be more cultivated, in use from November to February.

Pennington's Seedling, middle-sized, an excellent variety, in use from November to March.

Pitmaston Nonpareil Russet, middle-sized, very excellent, in use from November to February.

* Red Ingestrie, small, nearly as high-flavoured as the Golden Pippin, in use from October to November.

* Ribstone Pippin, middle-sized, ought to be in every collection, in some soils however, liable to canker, in use from Nov. to March.

Sam Young, small, rich and highly flavoured, in use Nov. to Feb.

Syke-house Russet, small, excellent, in use from Nov. to Feb.

West Grinstead Pippin, middle-sized, does not shrivel, in use from November to April.

Winter Red Streak, middle-sized, good and useful fruit, in use from October to January.

WINTER TABLE APPLES.

* Beachamwell, small, very excellent, in use from Dec. to March.

† * Bringewood Pippin, small, good quality, in use, Jan. to Mar.

Byson Wood, small, of the first quality, in use from Dec. to Feb.

Cockle Pippin, middle-sized, good keeper, in use, Jan. to Apl.

Conquest de Wigars, middle-sized, keeps without shrivelling, in use from January to March.

Court-pendu Plat, middle-sized, good bearer, in use, Dec. to Apl.

Gilliflower Cornish, middle-sized, the best of apples, but a shy bearer, in use from December to May.

Golden Drop Coe's, small, very excellent, in use, March to May.

* Golden Harvey, small, one of the richest apples, in use from December to May.

London Pippin, middle-sized, does not shrivel, in use, Dec. to Apl.

Newtown Pippin, middle-sized, excellent, but requires a wall, in use from January to May.

* Nonpareil Braddick's, small, good and keeps sound, in use from January to April.

Nonpareil Downton, middle-sized, sharp rich flavour, in use from December to April.

Nonpareil Fair's, small, very good, in use from Dec. to Feb.

Nonpareil Flat, small, a nice juicy apple, in use from Dec. to Feb.

Nonpareil Golden, small, very handsome, in use from Dec. to Feb.

† * Nonpareil Old, small, peculiar and excellent flavour, in use from January to May,

Nonpareil Martin, small, of the first quality, in use from December to March.

Nonpareil Ross, small, Fenouillet flavour, in use, Dec. to Feb.

† * Nonpareil Scarlet, middle-sized, very handsome, in use from January to May.

† * Nonpareil Sweeney, middle-sized, good bearer, in use from January to April.

Pearman Lamb Alley, middle-sized, keeps without shrivelling, in use from January to April.

Resivette Carpentin, small, peculiar subacid, and slight Fenouillet flavour, in use from December to April.

Resivette Uelners Gold, small, excellent, tree delicate, in use from January to March,

Russet Boston, middle-sized, Ribstone Pippin flavour, in use from January to April.

Russet Nonpareil, small, of excellent quality, in use, Dec. to Feb.

De St. Julien, large, very good and bears well, in use from December to March.

SUMMER KITCHEN APPLES.

- † * Alexander, large, good bearer, in use from Sept. to Jan.
- Autumn Pearmain, middle-sized, rich yellow flesh—Sep. & Oct.
- Broad-eyed Pippin, large, excellent, in use from Sept. to Dec.
- Cole, large, of the first quality, in use August and September.
- Dutch Codlin, large, good fruit, in use August and September.
- † * Hawthorndean, large, a very abundant bearer—Sep. to Dec.
- † * Keswick Codlin, fine for tarts as early as June, when no other are ready, in use from June to September.
- Kilkenny Codlin, large, good quality, in use from Aug. to Oct.
- Large Early Yellow Bough, larger, of very good quality, in use August and September.
- * Mank's Codlin, large, the first quality, in use from Aug. to Oct.
- Nonsuch, large, good, but soon go mealy, in use in Sept.
- Spring Grove Codlin, large, excellent, in use from July to Sep.
- Sugar-loaf Pippin, middle-sized, very good, in use in August.
- † * Winter Codlin, middle sized, very great bearer, in use from September to February.
- † * Wormesley Pippin, middle sized, excellent bearer, in use from September to November.

AUTUMN KITCHEN APPLES.

- † Bedfordshire foundling, large, handsome, excellent fruit, in use from November to March.
- Belle Fleur Brabansche, large, an excellent sort, in use from November to April.
- † * Blenheim Pippin, large, handsome, very excellent, in use from November to February.
- Burr Knot, large, strikes easily from cuttings, in use, Oct. to Jan.
- Codlin, winter, middle sized, great bearer, in use, Sept. to Feb.
- Caroline, large, an excellent apple, in use from Nov. to Feb.
- Col. Harbord's Pippin, large, excellent, in use from Nov. to Jan.
- † * Dumelow's Seedling, middle sized, very excellent, in use from November to March.
- English Codlin, middle-sized, in use from Novem. to March.
- Green Fulwood, large, a good apple, in use from Nov. to May.
- Gloria Mundi, large, in use from Nov. to January.
- † * Gravenstein, may be reckoned a rival to our Ribstone Pippin, in use from October to January.
- * Hollandbury, large, very handsome, in use from Nov. to Jan.

Holland Pippin, large, good, in use from Nov. to March.

Monstrous Leadington, large, in use from October to January.

† * Lord Nelson, Kirk's, large, very handsome, in use from November to February.

Mère de Ménage, large, first quality, in use from Oct. to Jan.

† * Minshul Crab, middle-sized, good bearer, in use Nov. to Feb.

† * Reinette, du Canada, large, perhaps surpassed by no apple of its size, it deserves extensive cultivation, in use from Nov. to April.

† * Yorkshire Greening, large, apt to speck, in use, Oct. to Jan.

* Royal Russet, large, becomes soft unless kept in pure sand; excellent for kitchen use, tree bears well, in use from Nov. to May.

Waltham Abbey Seedling, large, handsome, in use Oct. to Jan.

* Watson's Dumpling, large, resembles the beauty of Kent, excellent.

WINTER KITCHEN APPLES.

Alfriston, large, valuable fruit, in use from December to April.

† * Beaufin Norfolk, middle-sized, excellent for drying, in use from January to June.

† * Beauty of Kent, large, much esteemed, in use, Nov. to Feb.

* Bess Pool, middle-sized, very excellent, in use, Dec. to April.

Calville Blanche d'Hiver, large, in use from January to April.

Calville Malingve, large, great bearer, in use Jan. to April.

Deux Ans Hambledon, large, a valuable sort, in use, Jan. to May.

† * Northern Greening, middle-sized, keeps sound, in use from December to April.

Rhode Island Greening, large, good bearer, in use, Dec. to April.

Rostocker, large, a good bearer, in use from December to May.

Rymer, large, keeps very firm, and contains a brisk juice, in use from December to April.

† * Winter Majetin, large, tree hardy, not subject to the attacks of insects, in use from January to May.

II. APRICOTS, WITH BITTER KERNELS.

† * Brussels, fruit middle-sized, colour pale yellow, bears well on a standard, comes into use in the middle of August.

† * Hemskirke, middle-sized, orange red, ripens well about the end of July, if planted against an east wall, and may be considered superior to the Moor park.

Large Early, middle-sized, brown orange, rich table fruit, ripe in July.

† * Moor Park, large, orange red, excellent, ripens the end of Aug.

† * Peach Apricot, large, orange red, the best of all Apricots, ripe the end of August.

Red Masculine, small, yellowish red, the earliest of Apricots, the trees should be planted against a south or south-east wall, where they will ripen in favourable seasons, soon after the middle of July.

Roman, middle-sized, pale yellow, good bearer, used only for preserving, ripe the middle of August.

† * Royal, large, yellow orange, very excellent, ripens the beginning of August.

WITH SWEET KERNELS.

* Breda, small, brown orange, first rate, bears well as a standard, ripe in August.

Mush Mush, small, orange red, very sweet and tender, ripens the end of July.

† Orange, middle-sized, orange red, good for preserving, ripens the middle of August.

* Turkey, middle-sized, deep yellow, excellent late fruit, ripens the end of August.

III. CHERRIES.—TABLE USE, SUCCEEDING AS STANDARDS.

Adam's Crown, fruit middle-sized, colour pale red, ripens in the beginning of July.

* Bigarreau, large, pale yellowish red, excellent bearer, ripe the end of July.

* Bigarreau à Gross Fruit Blanc; large, pale yellowish red, flesh tender, ripe in July.

Bowyer's Early Heart, middle-sized, red, good bearer, ripens the end of June.

Carnation, large, pale red, first quality, ripens the middle of July.

Gean Amber, middle-sized, pale red, abundant bearer, ripe the beginning of August.

KITCHEN USE.

English Preserve, middle-sized, good for drying, ripe in the beginning of July.

English Cherry, middle-sized, red, good variety of the Kentish, ripe in the beginning of July.

† * Kentish, middle-sized, red, good-bearer, but rather watery, ripe the end of July.

† * Kentish Drier, middle-sized, red, quality similar to the last, ripe the middle of July.

D'Ostheim, middle-sized, dark red, bears well as a dwarf, ripens the end of July.

II—TABLE USE REQUIRING A WALL.

Those marked thus : ‡ will bear good crops as Standards, but we should recommend their being placed against walls wherever it is convenient.

† * Arch Duke, large, deep red, ripens well on a north wall by the middle of July.

Belle de Choisy, ‡ large, red, very handsome fruit, ripe in the beginning of July.

† * Black Eagle, ‡ middle-sized, black, excellent early fruit, ripe the end of June.

† * Black Tartarian, large, black, fine and good quality, ripe the end of June.

Downton, ‡ middle-sized, pale yellowish red, good bearer, ripe the beginning of July.

† * Elton, ‡ large, pale yellowish red, very excellent, ripens the beginning of July.

Florence, ‡ large, pale yellowish red, succeeds best trained against an east or south-east wall, where it ripens its fruit about the end of July.

Griotte Early Purple, middle-sized, dark-red, valuable, ripens the beginning of June.

† * Holman's Duke, middle-sized, deep red, valuable when planted against a north wall for its lateness, it ripens about the middle of August.

Knights Early Black, large, black, very fine fruit, ripens the beginning of July.

† * May Duke, middle-sized, dark red, one of the best, ripens the end of June.

Waterloo, large, black, high-flavoured, very good, ripens the beginning of July.

KITCHEN USE.

† * Morrella, large, dark red, excellent for preserving, do well on a north wall, where they ripen about the middle of August.

IV.—CURRANTS.—BLACK.

† * Black Naples, this is superior to any other both for crops and size of fruit.

† * Common Black, very good but quite inferior to the preceding.

RED

† * Red Dutch. This is the most common cultivated red currant.

† * Knight's Sweet Red Currant, a very good fruit and little known.

WHITE.

† * Common White or Crystal, bunches very large and transparent.

† * White Dutch, fruit yellowish colour, superior for dessert to the last, for although the bunches berries are not so large, the flavour is much better.

V.—FIGS.

Blanche Figue, middle-sized, whitish colour, excellent for forcing; ripens in August.

* Black Ischia, middle-sized, dark violet, tolerably hardy, ripe in August.

* Brown Turkey, middle-sized, reddish brown, very delicious, ripens in August.

* Brunswick, large, brownish red, well suited for walls, apt to drop, if forced, ripens by the middle of August.

Chestnut, or Brown Ischia, large, brown, high flavoured, but very liable to burst when it ripens, ripe in the beginning of August.

* Genoa, Large White, large, pale yellow, excellent flavour, ripe the end of August.

Ischia Green, middle-sized, brownish green, high-flavoured, ripe the end of August.

Ischia Yellow, large, yellow, rather a shy bearer, ripens in Sep.

Malta, small, pale brown, very sweet and well flavoured, ripe the end of August.

* Marseilles, middle-sized, white, one of the best for forcing, ripe in August.

* Pregussata, middle-sized, dark brown, excellent quality, good for forcing, ripens about the end of August.

Nerii, small, pale greenish yellow. This is liable to cast its fruit both in the stove and open air, it succeeds pretty well under glass in a low temperature, and is a most delicious fruit.

N.B. All the sorts above named will answer for the south and midland counties, but those marked we consider the best. Far north none can be usefully grown except under glass.

VI—GOOSEBERRIES—RED—TREES GROWING ERECT.

† * Champagne, red, fruit small, rough of unequalled richness, excellent for table.

† * Beaumont's Red, middle-sized, rough, the leaves are downy, of excellent quality.

† * Leigh's Rifleman, large, rough, very good bearer, and ripens late.

Scotch Best Jam, small, rough, very fine preserver.

Speechley's Yaxley Hero, large, rough, excellent berry, well worth growing.

TREES SPREADING.

† * Crown Bob, Melling's, large, rough, of very good quality.

† * Keen's Seedling, middle-sized, rough, very good bearer, and earlier than the Warrington.

Raspberry, small, rough, ripens early, and is of considerable merit.

† * Red Mogul, small, rough, a very excellent dessert berry.

Rough Red, small, rough, very good, much esteemed for preserving.

Rider's Scented Lemon, large, smooth, very excellent quality.

TREES PENDULOUS.

† * Berry's Farmer's Glory, large-sized, downy, a very excellent bearer.

Red Rose, large, downy, good bearer, and first rate flavour.

† * Red Warrington, large, rough, one of the very best, will hang on the trees very long.

YELLOW.

Beaumont's Smiling Beauty, large, smooth, a very good bearer.

† * Dixon's Golden Yellow, middle-sized, smooth, very good quality.

† * Hill's Golden Gourd, large, rough, very excellent, either for table or kitchen.

TREES ERECT.

† * Champagne, yellow, small-sized, rough, very excellent for table.

† * Hebburn Yellow Aston, small-sized, rough, very good flavoured.

† * Rumbullion, small-sized, downy, chiefly grown for bottling.

Smooth Yellow, small-sized, downy, very good fruit for the dessert.

Sulphur, small-sized, rough, very good bearer.

† * Yellow Smith, small-sized, rough, greatly resembles the Yellow Champagne.

Yellow Ball, middle-sized, smooth, very good fruit, well worth growing.

GREEN.

Hebburn's Green Prolific, middle-sized, rough, very good bearer.

† * Hopley's Lord Crew, large, rough, a very excellent berry.

Late Green, small, downy, ripens its fruit late.

† * Parkinson's Laurel, large-sized, downy, good bearer, resembles Woodward's Whitesmith.

† * Pitmaston Green Gage, small, smooth, very excellent flavour.

TREES SPREADING.

Early Green Hairy, small-sized, rough, early and very good.

† * Large Smooth Green, large-sized, smooth, very good bearer.

Sabine's Green, small-sized, smooth, very good flavour.

† * Walnut Green, middle-sized, smooth, a very profuse bearer.

TREES PENDULOUS.

Green Seedling, small-sized, rough, a very good bearer.

† * Gregory's Perfection, large-sized, downy, ripens late, very good.

† * Edward's Jolly Tar, do. smooth, a very good bearer.

† * Massey's Heart of Oak, large, smooth, very good bearer.

WHITE.

† * Cleworth's White Lion, large, downy, a very good late sort.

TREES ERECT.

† * Bright Venus Taylor's, middle-sized, rough, excellent, hangs till it shrivels.

Champagne White, small-sized, rough, very good, downy leaves.

Damson, white, small-sized, smooth, excellent, skin thin.

Hedgehog, middle-sized, rough, fruit very rough, but good flavoured.

† * Honey White, middle-sized, smooth, very excellent.

Large Early White, large-sized, downy, very early fruit.

† * Sheba Queen, Crompton's, large-sized, downy, resembles Woodward's Whitesmith.

† * Wellington's Glory, large-sized, downy, skin thin, flavour excellent.

White Eagle, Cook's, large-sized, downy, very good fruit.

† * White Bear, Moores, large-sized, rough, ripens early.

† * Woodward's Whitesmith, large-sized, downy, best fruit of this colour.

TREES SPREADING.

† * Chrystal, small-sized, smooth, late, and very good bearer.

Chrystal, White, small-sized, rough, very good bearer.

Early White, middle-sized, downy, ripens early, very good.

Fig, White, small-sized, smooth, rich, but rather a tender sort.

In the above list, we have paid no regard to size ; our chief aim has been to select those of the best flavour, those marked may probably be found superior to the others, where a very choice selection is required.

GRAPES.—SELECTION FOR THE OPEN WALL.

* Burgundy, Miller's, fruit black, skin thick, bears and ripens well in favourable situations.

* Cambridge Botanic Garden, black, skin thick, good bearer, ripens well.

Chasselas Prècoce, white, skin thin, resembles the sweet water, but finer.

* Muscadine, Royal, white, skin thin, bears well on a south wall.

Pitmaston White Cluster, white, skin thick, ripens well in fine seasons.

* Grove End Sweet Water, white, skin thin, early, ripens well.

* White Sweet Water, white, skin thin, good bearer, ripens well.

White Cluster, scotch, white, very hardy and early sort.

SELECTION FOR VINERIES.

Boudales, fruit red, flavour of a muscat, resembles the Red Frontignan.

Chasselas Musqué, white, skin thin, very sweet, good grape.

Frankenthal, black, thick skinned, flavour sweet, resembles the B. Hamburgh.

* Frontignan Black, thin skinned, muscat flavour, and an excellent bearer.

Frontignan Blue, fruit purple, thick skin, very good fruit.

* ——— grizzly, yellow red colour, thick skinned, peculiar rich flavour.

Frontignan Red, thick skinned, flavour similar to the other Frontignans, excellent.

* Frontignan White, thin skin, very rich flavour, and good bearer.

Giberalter Black, dark red, thin skin, very good grape.

* Hamburgh, black, thick skinned, allowed to be the very best for general cultivation.

* Hamburgh, Braddick's Seedling, black, thick skinned, similar to the preceeding.

Lunel, white, thin skin, muscat flavour, very good fruit.

Muscadine, Black, thick skinned, sweet flavour, very good.

Petersburgh, fruit black, thick skin, sweet flavour.

* Oldaker's West's St. Peter's, black, thin skin, will hang till March.

Tokay Charlesworth's, white, thick skin, sweet flavour, very good.

Tokay, white, thin skin, sweet, a very abundant bearer.

SELECTION FOR STOVES.

Black Damascus, thin skinned, late, very valuable, but rather a shy bearer.

* Black Lombardy, or West's St. Peter's, thin skinned a good late sort.

Black Morocco, dark red, thick skinned, flavour sweet and sugary.

Black Tripoli, thin skinned, sweet flavour, very late.

* Muscat of Alexandria, white, thick skinned, rich flavour, suited for the warmest situations in which vines grow.

* Raisin des Carmes, purple, thick skinned, with a sweet flavour.

Varney' Seedling, black, thick skinned, sweet flavour, ripens late.

In the above list we beg to be understood, that in selecting Vines for the stove, we are not binding the grower to plant no other sorts than those named, all the best sorts under the head Vinery will bring fine early crops in the stove, but those named as stove vines, will not ripen or do so well in any but stove heat.

EARLY MELONS.

Beechwood, a good bearer, netted rind, greenish white flesh, grows from two to three pounds; very good.

Cantaloup, Scarlet fleshed, good bearer, thick rind, very sweet, grows to three pounds.

Des Carmes, thick rind, pale red flesh, very high flavoured, grows from six to seven pounds.

* Early Cantaloup, good bearer, thin rind, orange flesh, very good, grows from two to three pounds.

* Germek, large, (Persian) good bearer, thin rind, green flesh, very good, grows to six pounds.

* Green Fleshed Egyptian, good bearer, thin rind, very excellent, grows from two to three pounds,

Green Fleshed Italian, good bearer, thick rind, very excellent, grows to three pounds.

* Green Fleshed Masulipatam, good bearer, thin rind, excellent, grows to one pound.

Polignac, good bearer, thick rind, pale red flesh, fine sort, grows to three pounds.

Rock, Golden, good bearer, thick rind, pale red flesh, excellent, grows to three pounds.

* Scarlet Fleshed, smooth, good bearer, thick rind, excellent, grows to three pounds.

LATE MELONS

* Cephalonian, good bearer, thin rind, green flesh, excellent flavour, grows to ten or twelve pounds.

Daree, (Persian) good bearer, fruit green, thin rind, flesh white, high flavoured, grows to five pounds.

* Dampsha (Persian) good bearer, fruit yellow, thin rind, flesh green, grows from four to five pounds, and keeps long after it is cut, without losing its flavour.

Geree, good bearer, fruit green, rind thin, flesh green, excellent but rather tender, grows to five pounds.

* Hoosainee, Green, (Persian) good bearer, fruit green, rind thin, flesh white, high flavoured, grows from three to four pounds.

* Housainee, Striped (Persian) good bearer, fruit greenish yellow, rind thin, flesh white, very rich flavour, grows from three to four pounds.

* Keiseng (Persian) good bearer, fruit pale yellowish red, rind thin, flesh white one of the very best, generally grows from four to five pounds.

Melon of Gerger, (Persian) fruit yellow, rind thin, flesh red, very good, grows from two to four pounds.

Melon of Nukshevan (Persian) fruit yellow, rind thin, flesh white, very good, grows to eight pounds.

* Silver Rock, good bearer, fruit yellow, rind thick, flesh pale red, rich, grows from five to six pounds.

Sir Gore Ousley's Persian, good bearer, fruit yellow, rind thin, flesh white, grows from three to four pounds.

Small Levant, middling bearer, fruit yellow, rind thick, flesh pale red, high flavoured, grows to five pounds.

* Sweet Melon of Ispahan, (Persian) good bearer, fruit yellow, rind thin, flesh green, perhaps the best melon grown, generally weighs from six to ten pounds.

* Valentia, or Winter Melon, good bearer, fruit green, rind thin, flesh pale, straw coloured, sweet and juicy though not rich, its chief good property is, that if cut and hung up in a dry room, it will keep very long without losing its flavour.

* Windsor Scarlet fleshed, good bearer, fruit green, rind thick, flesh salmon coloured, very excellent flavour, grows from four to five pounds.

NUTS.

Bond Nut, large size, thin shell, rough husk, and a very good nut.

* Cob, large size, shell thick and hard, husk rough, well known.

* Cosford, large. shell thin. husk rough, very good bearer, excellent quality.

Frizzled Filbert, middle-sized, shell thick, husk rough, a great bearer.

* Northamptonshire Prolific, middle-sized, shell thick, husk rough, ripe early.

* Red Filbert, middle-sized, shell thick, husk rough, peculiar good flavour.

Spanish, large size, shell thick, husk smooth, grows very large.

White Filbert, middle-sized, shell thick, husk rough, excellent flavour.

NECTARINES—1 MELTING.

OR SUCH AS PART FROM THE STONE.

Aromatic, middle-sized, pale yellow and red colour, ripe the end of August, like the *Violette Hâtive*.

† * Brinion, large, pale yellow and red, ripens the end of August, very excellent.

* Duc de Tello, large, pale green and red, ripens the beginning of September, excellent.

Downton, large, pale green and red, ripens the end of August.

† * Elruge, middle-sized, pale green and dark red, ripens the end of August or beginning of September, is a fine bearer, and forces exceeding well.

* Fairchild's, small-sized, greenish yellow, ripe the beginning of August, esteemed for its earliness.

Hoy's New Seedling, middle-sized, pale green and red, ripens the end of August, resembles the Elruge.

† * Pitmaston Orange, large orange and dark red, ripens end of August, hardy, and a good bearer.

† * Hunt's Tawny, middle-sized, orange and dark red, ripens middle of August, esteemed for its earliness.

Violette Grosse, large pale green and red, ripens the beginning of September, resembles the *Violette Hâtive*.

† * *Violette Hâtive*, large, pale green and red, ripens the end of August, a very abundant bearer, is very red at the stone, which distinguishes it from the Elruge.

White, New, large, white, ripens the beginning of September, in favourable situations, this acquires excellent flavour; but under other circumstances is rather indifferent, the first are liable to fall at the time of stoning.

* White, Old, large, white, ripens August or beginning of September, excellent, but very scarce.

II. PAVIES, OR CLING STONES.

Imperatrice, large, dark red, ripens the beginning of September, shrivels like the Newington.

* Newington, large, dark red, ripens the beginning of September, good bearer, very excellent.

† * Newington, Early, large, dark red, ripens the end of August, ripens somewhat earlier, and grows larger than the Old Newington.

* Newington, Tawny, large, yellow and bright red, ripens the beginning of September, fine flavour.

† * Roman, large, green and bright red, ripens the beginning of September, the true sort is very scarce; the Elruge and Violette Hâtive are often sold under the name of Roman.

Saint Omer's, middle-sized, yellow and bright red, ripens the beginning of September, rather scarce, highly flavoured, and very juicy.

PEACHES.—I MELTING,

OR SUCH AS PART FROM THE STONE.

* Admirable, late, large, pale yellow and red, ripe the end of September; one of the very best late peaches, very good for the peach house to succeed the earlier sorts.

† * Barrington, large, pale yellow and red, ripens the middle of September; tree grows vigorous, is a good bearer, not subject to mildew, very excellent.

† * Bellegarde, large, pale green and dark red, ripens the beginning of September; a very handsome peach, forces well, succeeds Royal George and Grosse Mignonne, but keeps better than they do after being gathered.

Braddick's Red, large, pale green and dark red, ripens the end of August; fine handsome fruit, of very good quality.

† * Col. Ansley's large, pale yellow and red, ripens the middle of September, resembles the Barrington.

* Cambray, large, pale yellow and red colour, ripens the end of August, hardy and good.

† * Chancellor, large, pale yellow and red colour, ripens the beginning of September.

* Dunnington Beauty, large, pale green and red, ripens the end of August, resembles the Noblesse.

† * Ford's Seedling, large, pale green and red, ripens the end of August, resembles the Noblesse.

Galande, Steward's Late, large, pale yellow and red, ripens the middle of September.

Hemskirke, middle-sized, pale green and red, ripens end of Aug.

* Knapp Castle Seedling, large, pale green and red, ripens the end of August, much resembles the Noblesse.

* Madelaine de Courson, middle-sized, pale-yellow and red; ripens the end of August, flesh with very little red at the stone; a good bearer.

† * Malta, middle-sized, pale green and red, ripens the end of August; tree hardy, fruit keeps well after being gathered, and bears carriage.

† * Mignonne Grosse, large, yellow and red, ripens middle of August, good bearer and forces well; trees not subject to mildew; fruit does not bear carriage so well as some others.

Mignonne Lord Fauconberg's, large, pale yellowish green and red, ripens beginning of September, a good peach, resembling the Royal Charlotte.

Mignonne Petite, small, pale yellow and red, ripens the beginning of August.

Morrisiana Pound, large, pale green and red, ripens the middle of September; one of the best of the American sorts.

Mountaineer, large, pale yellow and red, ripens the beginning of September.

Nivette, large, pale green and red, ripens the middle of September, resembles the Late Admirable.

† * Noblesse, large, pale green and red, ripens the end of August. One of the very best either for forcing, or the open wall.

Pouprée Hâtive, middle-sized, yellowish white and red, ripens the end of August. A good peach, large as the Grosse Mignonne, earlier, but more tender.

† * Royal Charlotte, large, pale green and dark red, ripens the beginning of September.

† * Royal George, large, pale greenish white and red, ripens the end of August; these two last are excellent sorts, the Royal George in particular is a fine bearer, and forces well, but is rather subject to mildew; it is sometimes cultivated under the name of Red Magdalen.

Royal George Mignonne, large, pale yellowish white and red, ripens the end of August.

Sulhampstead, large, pale green and red, ripens the end of August, resembles the Noblesse.

* Twyford, large, pale green and red, ripens the beginning of September, resembles the Noblesse.

Williams's Early Purple, large, pale green and dark red, ripens the end of August.

PAVIES OR CLING-STONES.

* Catherine, large, pale green and red, ripens the end of September. One of the best late Cling-stone Peaches.

* Catherine Williams's, large, pale green and red, ripens the end of September.

Heath, large, pale yellow and red, ripens in October; in good seasons, one of the best.

† * Newington, Old, large, pale green and red, ripens the beginning of September, very good.

N. B. Although we have marked a selection of Peaches and Nectarines for the northern counties, yet it must be remembered, that flued walls are necessary, as even in the Peak of Derbyshire, the fruit will not come to perfection without the assistance of fire.

PEARS.—SUMMER DESSERT USE,

GROWING AS STANDARDS.

* Ambrosia, middle-sized, roundish Obovate, greenish yellow, ripens in September, delicious but does not keep long.

Beurre d' Amalis, large, Obovate, greenish brown, ripens in September, first quality.

† * Citron des Carmes, middle-sized, Obovate, yellowish green, ripens in July, a good bearer, and one of the best early pears.

† * Doyenné, White, middle-sized, Obovate, pale yellow, ripens in September, a good bearer, and excellent flavour if used when in perfection.

English Caillot Rosat, large, Obtuse pyriform, greenish brown marked with red, ripens in August, a very good bearer.

Famenga, middle-sized, greenish yellow and brown, Obovate, ripens in September, very good.

Hessel, middle-sized, Obovate, brown, ripens in September, a great bearer.

* Muscat Robert, small, turbinate, greenish yellow, ripens in July, very good early pear, but lasts in perfection only a few days.

Passans de Portugal, middle-sized, oblate, pale brown, ripens in August, great bearer.

† * Rousselet de Rheims, small, pyriform, brownish red, ripens in September, peculiarly rich and sugary, dries well.

* Summer Franc Real, middle-sized, obovate, yellowish green, ripens in September.

* Summer Rose, fruit large, oblate, russety red, ripens in August, very handsome.

Valleè Franche, middle-sized, yellowish green, obovate, ripens in August.

REQUIRING A WALL.

† * Jargonelle, large, pyriform, yellowish brown, ripens in August, best at this season.

AUTUMN DESSERT USE, GROWING AS STANDARDS.

† Aston Town, small, yellowish green and brown, roundish, ripens the end of October.

† * Autumn Bergamot, small, round, greenish brown and red, ripens in October.

* Beurré Bosc, large, pyriform, russety, ripens in October, very excellent.

† * Beurré de Capiaumont, middle-sized, Obovate, brownish red, ripens in October, a great bearer, withstands the late spring frosts better than most others.

† * Beurré Diël, large, obovate, yellowish brown, ripens in October, hardy, great bearer, excellent, deserves extensive cultivation, requires the branches to be well thinned in pruning, to admit sufficient air amongst its abundant foliage.

† Bishop's Thumb, large, oblong, brownish red, ripens in October, very good.

* Bon Chretien Fondante, large, oblong, greenish brown, ripens in October, has a cool refreshing juice like the St. Germain; tree hardier, and a good bearer, a very excellent pear.

Colmar, Autumn, large, obtuse pyriform, pale green, ripens in October.

* Compte de Lamy, middle-sized, obovate, pale yellow and red, ripens in October.

† * Doyenne Gray, middle-sized, obovate, russet red, ripens in October, keeps better than the white Doyenne.

Figue de Naples, large, oblong, brownish red, ripens in November, tree grows vigorous.

Flemish beauty, large obovate, russety red, ripens in October, must be gathered early.

† Gendeseim, large, obtuse pyriform, pale greenish yellow, ripens in October, tree hardy.

† * Glout Morceau, large, obtuse elliptic, pale green, ripens in November, and keeps in use till January, hardy, a good bearer, excellent quality, hangs late on the tree.

† Henri Quartre, middle-sized, pyriform, yellowish green, ripens in October.

† * Hacon's Incomparable, middle-sized, roundish, brownish green, ripens in October.

Louisa Bonne of Jersey, large, pyriform, greenish brown and red, ripens in October.

† * Marie Louise, large oblong, brownish yellow, ripens in October, one of the very finest, bears abundantly, succeeds also well on a north wall.

* Napoleon, large, obtuse pyriform, pale green, ripens in November; tree vigorous, good bearer, fruit excellent, very juicy, should not be used till it changes to a pale colour. In the northern counties it will require a wall to bring it properly to perfection.

Parmentier, middle-sized, obovate, red, ripens in October, streaked with bright red.

† * Saint Germain, large, pyriform, yellowish green and brown, in use from November to January. This sort has sometimes been confused with the Louise Bonne, hence two varieties of St. Germain are mentioned by some.

† Swans-Egg, middle-sized, obovate, greenish brown, good bearer, ripens in August.

† * Seckle, small, obovate, brownish red, ripens in October, good bearer, very rich aroma.

Sucre Vert, middle-sized, obovate, green, ripens in October, tree vigorous, abundant bearer.

Thompson's, middle-sized, obovate, pale yellow, ripens in November, flavour of Passe Colmar.

Whitfield, middle-sized, obovate, yellowish brown, ripens in November, great bearer.

REQUIRING A WALL.

* Bergamot Gansel's, middle-sized, obovate, yellowish brown, ripens in October, excellent, superior to the autumn Bergamot, but less hardy,

* Bergamotte Suisse, middle-sized, roundish, greenish yellow, ripens in October.

Beurre Brown, large, obovate, brown, ripens in October, varies much according to the soil, climate, and situation.

* Bezi de la Motte, middle-sized, roundish, brownish green, ripens in November.

† * Crassane, large, roundish, greenish brown, ripens in November, very good pear.

* Duchesse d'Angoulême, large, obtuse obovate, brownish yellow, ripens in November, a very good bearer, grows to a very large size.

Urbaniste, middle-sized, pale-green, obovate, ripens in October, good flavour.

Welbeck, large, obovate, yellow russety, ripens in October.

WINTER DESSERT PEARS.—STANDARDS.

* Crassane Winter, large, turbinate, greenish yellow and brown, ripens in January, good bearer.

* Downton, middle-sized, pyriform, yellowish brown, in use Jan. and February, good bearer.

† * Fondante du Bois, middle-sized, obovate, greenish yellow, in use December to February, resembles the Passe Colmar.

* Forelle, middle-sized, roundish, yellowish green and red, in use from October to January.

Knight's Monarch, middle-sized, obovate, yellowish brown, ripens in January.

Ne Plus Meuris, middle-sized, roundish, brown russet, in use from November to March, one of the best late pears, although not so handsome as some.

Rouse Lench, large, oblong, pale green, in use January and Feb.

REQUIRING A WALL.

* Beurré, Easter, large-sized, obovate, greenish brown, hardy, one of the very best, in use from January to March.

† * Beurré d' Aremberg, middle-sized, obovate, pale brown, in use December and January, excellent.

† * Beurré Rance, middle-size, obtuse pyriform, brownish green, in use from March to May, the very best late sort yet known, is well deserving a wall.

* Bezi Vaet, middle-sized, obovate, yellowish brown, in use December and January, resembles the Chaumontel in flavour, bears also well as a standard.

† * Chaumontel, large, oblong, yellowish brown, in use from November to March.

* Colmar, middle-sized, obtuse pyriform, greenish yellow and brown, in use from November to February.

† * Passe Colmar, large, obovate, bright yellow, in use December and January. Tree very free from canker, much hardier than the Colmar, great bearer.

Virgouleuse, large obovate, yellowish green, in use from November to January. Tree vigorous, fruit excellent, but a shy bearer.

† Winter Nelis, middle-sized, obovate, yellowish brown, in use December and January.

PEARS FOR KITCHEN USE.—STANDARDS.

† * *Bellissime d'Hiver*, large, roundish, brownish red, in use from November to April, good stewing pear, bears well.

Belmont, large, obovate, pale yellowish brown, in use in November, great bearer.

Bequêne Musqué, middle-sized, oblong, yellow, in use from Nov. to January, excellent for stewing.

† * *Bezi d'Héri*, middle-sized, roundish, greenish yellow, in use from November to January.

Chaptal, large, obovate, brown, in use from Nov. to April.

* *Franç Real d'Hiver*, middle-sized, roundish obovate, brownish yellow, in use from Nov. to March, stews tender, and of a bright purple colour.

† * *Uvedale's St. Germain*, large, pyriform, greenish brown, in use from January to April. It requires a wall to bring it to perfection, in such situations a single fruit has been known to weigh upwards of two pounds.

PINE APPLES.

The *Queen* (No. 46, page 804) is one of the best varieties at present known for general cultivation, if exposed to a high temperature in the months of June, July, and August it is liable to become hollow near the core, but earlier or later in the season it is not subject to that defect. The *Ripley's Queen*, a slight variety of the common *Queen* is probably the best.

The *Moscow Queen*, (No 48) is an excellent variety but is rather a slow grower, the fruit is about the same size as the common *Queen* but superior to it in flavour.

The *Black Jamaica* (No. 11, p. 607) is an excellent fruit at all seasons of the year, but particularly in the winter months, when pines rarely come to perfection. It cuts firm to the core, is highly flavoured, keeps some time after it is fully ripe, and bears carriage better than any other. It is, however, rather a slow grower, and the fruit seldom attains a large size.

Brown Sugar-Loaf, (No. 29, p. 753,) is the best of the sugar-loaf kind; it is a large handsome and highly flavoured fruit, swells freely in the winter months, and its flesh is firm and juicy.

The *Ripley*, (No. 42, p. 804,) is large, handsome, and high-flavoured, it is a good summer fruit, and swells freely in winter.

St. Vincent.—(No. 22, p. 752.) The fruit is not large, but high-flavoured, particularly in summer; it is said to swell freely in winter.

Black Antigua, (No. 40, p. 803) is an excellent and highly-flavoured pine, if cut when it begins to turn from green to yellow; but if allowed to remain on the plant until it is quite ripe, it loses all its richness.

Enville, (No. 36, p. 803) is deserving of a place in collections as one of the handsomest pines in cultivation; although it is neither rich nor highly flavoured.

Lemon Queen, (No. 24, p. 752) is of free growth; the fruit is rich, juicy, and high-flavoured.

White Providence, (No. 9, p. 514) when grown to a large size is deficient in flavour, but is a very handsome showy kind. It may sometimes bear prematurely, and if in that case the fruit be allowed to become perfectly ripe on the plant, it is equal in flavour to a Queen.

The above varieties will probably be found most useful in a very select collection.—*Trans. Hort. Soc.*

PLUMS.—TABLE USE IN AUGUST.

SECTION I.—BLACK OR BLUE FRUITED.

† * Azure Hâtive, middle-sized, separates from the stone, excellent early fruit.

† * Nectarine, large-sized, adheres to the stone, an excellent bearer.

* Orleans, middle-sized, separates from the stone, an excellent bearer.

* Perdrigon Blue, middle-sized, adheres to the stone, this and the white Perdrigon furnish the Brignole Prunes.

Royal de Tours; large-sized, adheres to the stone.

SECTION II.—GREEN FRUITED.

† * Green Gage, middle-sized, separates from the stone, the best plum grown.

SECTION III.—RED.

Wheat, middle-sized, adheres to the stone, remarkable for its bright fiery red colour.

SECTION IV.—YELLOW.

* Drap d' Or, small, separates from the stone, very excellent.

Mirabelle, small, separates from the stone, also fine for preserving.

TABLE USE IN SEPTEMBER.

† * Coe's Golden Drop, large, adheres to the stone, one of the most valuable.

† * Saint Catherine, middle-sized, adheres to the stone, excellent bearer, good for preserving.

† * Large Washington, separates from the stone, an excellent plum.

* White Magnum Bonum, large-size, adheres to the stone, good bearer.

BLACK OR BLUE FRUITED.

D' Agen, middle-sized, separates from the stone, excellent bearer.

† * Kirk's, middle-sized, separates from the stone, excellent plum.

* Reine Claude Violette, middle-sized, separates from the stone, very excellent sort, good bearer, succeeds well as a standard,

* Virgin, middle-sized, separates from the stone, resembles the last.

TABLE USE IN OCTOBER.

* Coes Fine Late Red, middle-sized, separates from the stone ; a valuable sort.

† * Blue Imperatrice, large-sized, adheres to the stone, a good bearer.

YELLOW.

* Downton Imperatrice, middle-sized, separates from the stone.

PRESERVING AND KITCHEN USE.

Guimaraen, middle-sized, adheres to the stone, ripens beginning September.

† * White Bullace, small-sized, adheres to the stone, ripens in October.

* White Perdrigon, middle-sized, adheres to the stone, ripens the end of August.

BLACK OR BLUE FRUITED.

* Damson, Shropshire, middle-sized, adheres to the stone, excellent preserver.

† Goliah, large-size, adheres to the stone, ripens the end of Aug.

† * Orleans Early, middle-sized, separates from the stone, ripens the middle of August.

Quetsche de Brême, middle-sized, separates from the stone, ripens in September.

† * Imperial Diadem, large, separates from the stone, ripens the beginning of September.

† * Wilmot's New Early Orleans, middle-sized, separates from the stone, ripens in August.

Wine Sour, small, adheres to the stone, ripens the middle of Sept.

RASPBERRIES.

Re l Antwerp, Yellow Antwerp, Barnet, Bromley Hill, Cornish, Double Bearing.

STRAWBERRIES.—SCARLET.

American Scarlet, ripens middle of July, and requires plenty of room.

† * Black Roseberry, handsome, a good bearer, ripens the end of June.

Charlotte, good flavour, but rather indifferent bearer, ripens the middle of June.

† * Coul Late Scarlet, excellent sort, good bearer, ripens the end of July.

Gamston Scarlet, very good flavour, ripens the end of June.

† * Grove End Scarlet, abundant bearer, excellent, ripens the middle of June.

† * Old Scarlet, excellent for preserving, ripens middle of June.

† * Roseberry, abundant bearer, excellent forcer, ripens the end of June.

BLACK STRAWBERRIES.

† * Downton, the best of this class of strawberries, ripens beginning of July.

† * Elton Seedling, a great bearer, valuable as a very late sort, ripens middle of July.

Knight's Scarlet Fleshed, ripens the end of June, more red inside than out.

Old Black, good fruit, ripens the beginning of July.

Sweet Cone, of excellent flavour, but not so prolific as the Downton, ripens the end of June.

PINE STRAWBERRIES.

† * Keene's Seedling, excellent and productive, one of the best forcers, ripens middle of June.

† * Old Pine or Carolina, this is scarcely exceeded by any, it ripens the beginning of July.

The Chili Strawberries are scarcely worth culture. Wilnot's Superb is by far the best amongst them, it is a very handsome looking fruit, but is commonly hollow, wooly, and without flavour.

HAUTBOYS STRAWBERRIES.

Black, of the first quality, ripening the end of June or beginning of July.

† * Large Flat, abundant bearer, retains its characters better than the other sorts, ripens about the end of June.

† * Prolific, or Conical, this is one of the best if not the very best of this class, ripens the end of June.

Round Fruited Muscatelle; rather a small, but a very rich fruit ripens the beginning of July.

The Green Strawberries are not worth growing, where a selection of good fruits are wanted.

ALPINE AND WOOD STRAWBERRIES.

† * Red Alpine, and White Alpine, which bear fruit both through summer and autumn.

Red Wood, and White Wood, which only bear during summer.

ARTICLE II.

LIST OF THE BEST VEGETABLES IN CULTIVATION.

ARTICHOKES.—The Globular is the only variety worth cultivation.

ASPARAGUS.—Battersea and Gravesend varieties.

BEANS.—The Early Magazine, and Early Lisbon, are the best for early crops. The Long-pod is the most abundant bearer, and decidedly the best for small gardens. The Windsor, Sandwich and Token are good ones for summer crops.

BEET ROOT.—The Large Rooted, is the best to boil, and slice for table, and the Green and White, for their leaves.

BROCCOLI.—The following are the best sorts, at present cultivated in our gardens: Green Cape, Early Purple Cape, Grange's Early White, Early Sprouting Purple, Green's Close-headed Winter, Impregnated Early White, Tall large-headed Purple, Portsmouth or Cream coloured, Sulphur Coloured, Late or Spring White, Late Dwarf Close-headed purple, Siberian or latest Green.

The Green Cape and Early Purple Cape sown in May and June will produce from August to December; sown in July and August, if the winter is mild, will produce heads in April and May. *Grange's Early White* sown at three different times, between the beginning of May to the end of June, will produce from Michaelmas to Christmas. *Early Sprouting Purple* sown in April will produce from November to February; sown in June will produce sprouts in March and April. *Green close-headed Winter*, if sown the end of May, will produce from November to February, if the winter is mild. *Impregnated Early White* sown the beginning of March will produce from No-

vember to Christmas. *Tall large-headed Purple* sown the end of March will produce in the March and April following. *Portsmouth* sown in the middle of April, will produce in February and March. *Sulphur Coloured, Spring White and late Dwarf Purple*, sown in March will produce in April and May following. *Siberian* will endure our hardest winters, and sown the end of April will produce in May, the year following.

CABBAGES.—The following are the best varieties cultivated in our gardens: Superior Early, Early Dwarf, Early Imperial, Early Battersea, Early Dutch, Large York, Large Penton, Early York, Vannack, Early Cornish, Emperor, East Ham, Late Battersea, Red Dutch.

The Early Summer crop of Cabbages require to be sown about the middle of the preceding August; and the autumn crops should be sown from the beginning of April to the middle or end of May in the same year. Red Cabbage makes the best heads for pickling if sown in April and not cut till the following winter or spring, if any are wanted for pickling early in the autumn they should be sown in August the preceding year.

CARDOONS.—The Spanish Cardoon is by far the best cultivated in this country, although in France the Cardoon of Tours is considered the best.

CARROTS.—For early crops the common Early Horn, and the Early Short Red Horn are the best, and may be sown on hotbeds in February or on warm borders in March. The Long Orange and Altringham as principal crops for winter use, are sown from the middle of March to the middle of April.

CAULIFLOWERS.—Early and Late varieties, the former of these is sown about the middle of September, and produces early the following summer; the latter are sown about the end of March, which will produce in May and June, and again in May, which will produce in October and November if the weather prove mild.

CELERY.—The best sorts are the Italian, Red Solid, White Solid, Celeriac or Turnip Rooted, and the Manchester Large; this last is decidedly the best sort grown, each root commonly weighing from ten to twelve pounds, and being very free from any rankness.

CUCUMBERS.—The following may be considered the most superior sorts: Early Frame, Early Southgate, Longford, Green Turkey, Kerrison's Hothouse, Walker's Long, Serene, Incomparable, Wandsworth Earl Grey, White Turkey.

ENDIVES.—The best of the Batavian Endives, are the broad-leaved or common Batavian; and the small Batavian, which is prefera-

ble to the first, being very mild, and sweet without any bitterness. Of the curled sort, the small green, and the large green, are those most usually cultivated.

KIDNEY BEANS.—The following may be considered some of the best; Chinese, Black Speckled, Canterbury, Early Dun or Buff Early Liver Coloured, Early Purple Speckled, Cream Coloured Negro, Battersea, Scarlet Runner. The sorts best for forcing are the Early Dun, Negro, Cream-coloured; and for a later forced crop, the Liver-coloured, which will bear a greater profusion than any of the other sorts.

LEEKs.—The varieties are three, but the London Flag, and Common, may be considered the two best.

LETTUCES.—The following may be considered the principal sorts. *Cabbage Lettuces.*—Brown Dutch, Hammersmith, Tennis Ball, Grand Admiral, Brown Silesia, Imperial, Marseilles, Black Seeded Gotte. *Coss Lettuces.*—Brown or Bath, Florence, Green Coss (black seeded,) Aleppo or Spotted, Egyptian, Dwarf Brown, Egyptian Green, Paris.

ONIONS.—The following may be considered the best sorts:—Deptford, True or Brown Portugal, Spanish or White Portugal, James's Long Keeping, Globe, Stratsburgh, Tripoli, Blood Red, Silver Skinned, Welsh.

PARSNIPS.—The Guernsey and Hollow-Crowned sorts appear to be far preferable to the Old sort, both for size and flavour.

PEAS.—The varieties are numerous, these perhaps will be found the most valuable,—Double-blossomed Early Frame. Blue Prussian, Dwarf Green Imperial, Dwarf Marrow, Egg Pea, Green Marrow, Knight's Dwarf Marrow, Knight's Tall Marrow, Royal Dwarf, Spanish Morrotto, Tall Green Imperial, and Wellington.

POTATOES.—Out of a great many varieties, the following will be found amongst the best: Early Kidneys, Early Manly, Fox's Seedling, Early Dwarf, Champions, Bread Fruits, Ox Noble, Early Shaw.

RADDISHES.—The most approved sorts are the Short Topped Scarlet, and Early Frame of the long sorts, and the Crimson Turnip-rooted and White Turnip-rooted, for spring and summer use; and the Black Spanish, Large Purple Winter, and White Spanish, for winter use.

RHUBARB.—Four Varieties, Buck's Rhubarb, Common, Elford, and Hybrid. The Elford is very valuable for forcing, &c.

SALSAFY and **SCORZONERA** require to be sown in April in an open part of the garden, and afterwards thinned out to eight or nine inches apart.

SEA KALE.—The seeds should be sown in March or April; in the following spring, the young plants should be taken up, and planted in rows four feet apart, and eighteen inches in the row; and at the end of the first year after planting out, they may be forced by means of large pots placed over the crowns, covered with hot dung or leaves.

SHALLOTS and GARLIC both require planting in drills, about fifteen inches apart, and six inches in the drill, about the beginning of March.

SPINACH.—There are three varieties cultivated, viz. :—Prickly, Round Seeded, and Flanders. The Prickly is sown in autumn to stand the winter, and is called Winter Spinach; the Round Seeded, is sown in spring and summer, and is more tender than the other; the Flanders appears to be far superior as a Winter Spinach to the Common Prickly, being very hardy, and produces more and finer leaves.

TURNIPS.—The sorts mostly used in gardens are the Early Dutch, Early Dwarf, and Early Stone.

WINTER GREENS consist of many sorts, the following may be considered the best: Green Savoy, Dwarf Savoy, Brussel Sprouts, Curled Kale or German Borecole, Brown Kale or Purple Borecole, Colebrooke-Dale Borecole, Thousand-headed Cabbage, Chou de Milan, Jerusalem or Buda Kale, Egyptian Kale. The Savoy and late Greens may be sown about the end of March, and the strongest plants planted out in June and July; the dwarf kinds may be sown about the middle of May, and planted out in July.

ARTICLE III.

ANSWERS TO QUERIES ON HORTICULTURAL SUBJECTS.

THE blotching of Grapes, named by a *Subscriber* p. 137, may possibly arise from the house being kept too close in the morning, during the time of powerful sun-shine; the berries and leaves being then covered by the condensed vapours which had arisen during the night, are very liable to be scalded. Air given early when the weather is fine, or a judicious syringing while the grapes are immature, as recommended by Mr. Plant, p. 280, will in general prove a perfect specific. *To J. D. p. 185.*—The floor of the pit is that on which the pots (1) are seen to stand; the top of the horizontal flue (a 3) is the back walk; (a 1 and 2) are in the air-chamber under the pit and

considerably below the back walk; the compartment (n) is to tie the vines in during the time they are dormant, where by opening the front ventilators, they are exposed to the open air until the time intended for forcing; the top (g) might do equally as well flat, the use of it being merely to prevent the heat finding access to the vines, and the cold entering the house, the two small holes (a, a) shew the return and termination of the flues, (a 4 & 5) in the back wall of the section. To *Thomas Bland*, page 186.—One reason why Mr. Lindley in his “Guide to the Orchard and Kitchen Garden” recommends one sort of grapes for vineries in the south and another in the north, may be that the ground being so much colder in the latter, he suspected the roots of the more tender kinds might suffer by being planted in the vine borders out of doors. If this is not his reason we cannot tell why, we have found the sorts he mentions for vineries in the south, thrive equally well in the north. To *a Constant Reader*, page 127. The vegetable marrow is very easy of culture, requiring similar treatment to cucumbers grown on ridges; it is scarcely worth growing requiring much ground which might be better occupied, we should rather recommend the advice given by Mr. George Harrison, p. 330. To “G. I. T.” page 330; cuttings of Cucumbers and Melons we conceive cannot well be extended beyond the same season, they are taken off as soon as the seedling plants have produced sufficient young branches, and inserted in a pot filled with the same soil as that of the bed, they speedily take root, and are then planted in another frame for a successional crop, where they bear abundantly at an earlier age than seedlings. An article on the subject will appear early in the next volume. To *a Subscriber* p. 427; we cannot tell where *Talc* is to be purchased, neither have we ever yet seen it used, and are therefore unable to judge of its properties. Would any of our kind correspondents favour him with an answer? To “M. D.” p. 475. In the formation of a vine border, as successional produce is contemplated, to continue from thirty, forty, or fifty years, without renovation except what may be received from top-dressings, the soil of those in pots may, for the most part, be renewed every year, the former bears a profusion on fifteen or twenty feet of rod, the latter on four or five; the former fill a situation with fruit, which could not be otherwise advantageously occupied, the latter stand in that part of the house which might be filled by pines, &c. requiring such situations; the flavour of grapes does not so much depend on the composition they grow in, as on their judicious management in the house, although it must be allowed where vines grow on a wet bottom, no management will render them equal to those grown in different cir-

cumstances : vines in pots, as early crops, are deserving of extensive cultivation. "F. T. O's" mode of heating conservations is not an indirect advertisement, see p. 667. Mr. Muscroft's list of gooseberries, page 204, notwithstanding the 7 chiefly relate to size, are nevertheless equal, if not superior, to some of the best old sorts ; the selection we have made in the present number, are those of superior flavour. To "Q. P. R" p. 571. Grafting and budding will shortly be treated on and illustrated, no perfect double flowers can be propagated by seed, as the stamens instead of performing the duty allotted by nature are converted into petals, the double primrose is readily increased by divisions of the roots. To *Sage*, p. 620. The best sorts of strawberries for forcing are the Grove End Scarlet, and Roseberry for the first crops, and Keene's Seedling to succeed them. To *Mr. J. Mills*, p. 621. We cannot speak either to the utility or inutility of the sterile hautboy strawberry, we have never yet found them of sufficient importance to prove the necessity of their presence, nor have we noticed them to be of sufficient injury to warrant destruction. If hautboys be planted on good strong soil where the roots can absorb a quantity of moisture, they will never fail to bear well, if on light soil they generally soon become barren. The ensuing year however we will pay more attention to the subject, and report the results. We should be ready to conclude the vines in the grapery are planted on a wet bottom, and experience has taught us when this is the case, except the season proves very dry, and the powerful absorption counterbalanced by powerful evaporation the fruit can never ripen kindly ; allowing the vines to ripen too abundant crops has a similar effect. Perhaps the apple, "H. M. M." names may be a Cornish Aromatic or Cornish July Flower, both may be obtained at Mr. Ronald's, of Brentford, or any other nursery round London, where most probably specimens of the fruit may be viewed, which would be the safest way of deciding ; for to select a particular apple out of a list of 1400, without either figure or description, is at best but conjecture and uncertainty. Mr. Howden remarks in a letter now lying before us, that it "would be better to apply for grafts to some friend in Truro." B. C. p. 760, will shortly be supplied with an article on the Pine Apple, with every necessary information. "To G. A. L." p. 766, Sugar-Baker's scum is an excellent manure, to promote the growth of auriculas and many other plants ; a sixth or eighth part should be mixed with good loam, and be allowed to remain exposed to the weather for, at least, twelve months, previous to using, and be occasionally turned. To "P. p. 668." The deficiency in the descriptions of fruits has been long observed, but has hitherto been remediless, there

exists much difficulty in so describing, that a person unacquainted with the fruit, may be able to distinguish one from another, without a plate for illustration. The *Miller's Burgundy Grape*, however, cannot easily be confounded with the *Claret a Rosa*, the former carries a white downy leaf throughout the summer; the leaves of the latter becomes red by midsummer, and finally die of a deep blood colour; the fruit of the former are even-sized, covered with a fine bloom, have juice clear as water and highly-flavoured, the latter are very unequal sized, have scarcely any bloom, the juice is of a blood red, and flavour harsh and austere. The *Large Black Cluster*, and the *Pitmaston Scarlet* are synonymous, and may be readily distinguished from the *Clarette*, by the form and size of the fruit, being considerably larger and more oval, also the leaves appear green till the autumn, which those of the *Clarette* do not, and when they change it is to a bright scarlet, not to a deep blood like the *Clarette*. The *Small Black Cluster* has much resemblance to *Miller's Burgundy* in the form of its fruit, but it has nothing so good flavour, its leaves are not woolley, nor its fruit so thickly set on the branches. The *Black Sweet-Water* has some resemblance to the last, but differs in its berries being round instead of partially oval, and thickly set on the bunches, which those of the preceding are not. Any further enquiry our correspondent may wish to make, we shall feel happy to furnish him with an answer. To "W. Z." p. 667. The fruit he enquires about, is most probably the *Common Azarole*, (*Cratægus Azarolus*,) we believe it is much used as a dessert fruit in the south of Europe; in this country it does not ripen upon standards, and we never saw it tried against a wall. The *Cratægus odoratissima*, and *tanacetifolia* bear fruit very similar to the true *Azarole*, and perhaps nearly as good flavoured, both these species are ornamental and bear abundantly as standards. To "G. A. L." p. 812. Scarifying fruit trees is not an uncommon practice, when they become bark-bound; we expect the matter will be investigated by some of our physiological friends, we shall therefore decline for the present entering further into the subject. To "Noctura," p. 475, and "G. I. T." p. 541. We would say on the subject of "Cutting the leaves of Peaches and Nectarines." We propose early in the next volume to lay before our readers, the reasons of recommending it to be done.

ARTICLE IV.

ANSWERS TO QUERIES IN FLORICULTURE.

To "B. C." p. 766.—The best mode of increasing the *Orange*, is by budding upon small seedling stocks, the proper time is when the buds upon the young shoots are tolerably ripe; this will be known by the appearance of the shoots or separation of the buds. After budding, place the plants in a hot-bed frame, as the moist heat accelerates the union of the bud with the stock. H. L. T. the *Double Camellia* can be successfully propagated by cuttings, we have on several occasions put off fifty cuttings, and have succeeded in striking forty-nine of them. The method we practised has been followed by some of our friends, and was found equally successful, how long they will continue to thrive, we are not prepared to say. Our kind correspondent G. A. L. in a letter which now lies before us, "says they may be propagated by cuttings very well, but when struck they grow very slowly, and after a year or two they generally wither and die, this is the reason why it is not recommended in Loudon's Encyclopedia;" and the main reason why it was not mentioned in our article p. 362, if our plants now struck, thrive and do well, we will insert an article on the subject. The *Narcissus stellaris* grows in the garden of the Apothecaries' Company, Chelsea. We have made enquiry, but cannot find it elsewhere. Mr. Howden informs us, "it is very expensive;" this is all we know about it. To "J. Mitford."—Take up the *Geraniums* at the approach of frost, with all their fibrous roots attached; shorten all the tops, and plant them as close as possible in oblong boxes, say twenty or thirty in each box of three feet long, water and place them in a shed, where they are safe from frost; they seldom require water afterwards unless they become very dry. In May, turn them out of the boxes, and plant them in the open ground. The system named by a practical gardener, p. 196, also answers exceedingly well. "T. S." p. 331.—The *Hearts-ease*, (*Viola tricolor*) delights in a rich and highly manured soil, but we will insert an article on the subject early in the next volume. The dark red China roses, if kept in pots, require a rich turfy soil, mixed with white sand, and the pots well drained with potsherds, so that water may pass off freely, otherwise the plants will not grow well. In most situations they require the protection of a cold frame in winter. If planted in the open ground, they should be grown in a rich fresh sandy soil, raised higher than the usual level of the situation; they generally require mulching during winter. They succeed best planted in a bed by themselves, which has been well drained by a substratum of stones and brickbats to the depth of several inches; *pruning* should always be deferred until the beginning of April. They are readily increased by taking off (close to the old wood) young shoots, two or three inches long, and planting them in pots of sandy loam, and placing them in a hot-bed frame, in a stove under glass, or under a hand-glass, as recommended for the common China rose, p. 246. To "A Florist," p. 813—We have received two answers; the writer of the first who designates himself P. states, that "when the *Erythrina Crista Galli* has done flowering, he cuts it down to two or three eyes, and sets it under the stage of the green-house, and gives it no water: in February, when he commences forcing, he repots and places it in the stove, giving it a small quantity of water, increasing the quantity as it grows, until he places a feeder under it, and gives it a copious supply. In about ten weeks its stem will have grown seven or eight feet high, and will be literally a mass of flowers. The soil used is a turfy sandy loam. It is propagated by cuttings of the ripe wood, or from young shoots rubbed off at the time of its breaking. The essential points of this mode of treatment are, 1st. its remaining for some time in a state of rest, 2nd. receiving a moderate degree of heat, and 3rd. an abundant supply of water during its growing season." The other signed "An Apprentice" says, "I keep my plants dry and cool all the winter; in February I turn them out of the pots, and shake off all the exhausted soil from the roots, I then replant them in pots nine inches diameter, in good sandy loam, and place them as near the glass as possible, in either a stove or a frame. When they be-

gin to grow, I select the strongest shoot for future flowering, and strip off all the rest, and by giving a good supply of water, they grow from five to six feet high. When done flowering I cut them down to within an inch of the soil, and set them in a cool place, and keep them pretty dry, and in a month's time I start them as before. In 1830, I planted one against an open wall, where it has remained without injury ever since, and flowers beautifully; I protect it in winter with saw-dust and an outer covering of straw, to keep the saw-dust dry." In our *Compost for Camellias*, given p. 362, and enquired about p. 620, we mean the following proportions, to one barrowful of rich hazel loam, add one-third of a barrowful of fine sand, half a barrowful of peat, and half a barrowful of good rotten dung or leaf soil. To "J. Thompson," p. 814—we had intended to have fully answered his query this month, on budding roses; but are obliged to defer it for want of room. To "Alfa," see p. 668—where a successful method of preserving dahlia roots, is described.

ARTICLE V.

ANSWERS TO MISCELLANEOUS QUERIES.

The request of "X Y" p. 523, in the number of queries proposed shall be complied with, by an early article on the subjects. Page 620—In reply to our correspondent, relative to the laps of glass, we would recommend the small lap as being decidedly preferable; the broad one is an attraction for moisture, which being expanded by frost often breaks the squares, it also causes a greater shade, as well as other injuries which might be pointed out. Page 474—No method can be better adopted to eradicate couch grass from the lawn than turning, over the soil and picking out the roots. No doubt a strong application of salt would effect the object, but it would destroy the neighbouring turf for some distance around, and the destructive properties of the salt would remain in the soil for a length of time, so that a new turf could not be had so soon by forking over the ground. To "An Emigrant" page 280—We have not yet had it in our power to obtain the particulars of clearing trees from land, as practised by the gentleman to whom he alludes. To "M" page 571—We cannot tell what method can be used to eradicate the beetles (*Blatta Orientalis*) he complains of; if the traps were baited with something tempting they probably might enter, perhaps some of our readers could furnish us with their experience on the subject. To "G. A. L." page 571—The reference to page 516 was quite inadvertently inserted as he would perceive, the article having no connection whatever with the question proposed. We are not acquainted with the nature of the plants infested, if they are vines this is the time to completely eradicate the insects: after peeling off the old bark, apply carefully with a painter's brush the following mixture take two pounds of soft soap and dissolve it two gallons of boiling water, beating it up into a lather, then add as much cold water as will leave it about new milk warm, apply it in this state over the stems and branches of the vines, and if on other plants with a syringe to reach where the brush would be useless: also to the above mixture add about half a pint of linseed oil, and a quarter of a pint of turpentine to every gallon, with this let the walls, wood-work &c. be well washed with a brush, carefully, lest it should fall either on the vines or other plants which the turpentine and oil would materially injure. This has hitherto been found perfectly effective. To "A Subscriber," (ab initio) p. 677—We cannot inform our correspondent what is the best mode of extracting the juice of Goose grass, perhaps some of our friends will favour us with their experience. Mr. Howden has already furnished us with his: he says, "I shall give my recipe, which I once saw practised by a travelling quack, when he had disposed of all his cure-alls, he went into the fields, collected his favorite herbs, chewed them in his mouth, and spit the juice into his phials, which he readily sold at two shillings and sixpence each."

ARTICLE VI.

LIST OF ALL THE NEW AND VERY RARE PLANTS INSERTED IN
THE VOLUME.

CLASS 1st.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

ACANTHACEÆ.

- Justicia* (*J. Justice*, a Scotch Horticulturist and Botanist.)
asperula roughish, stove E. Shrub, 2 ft. summer, pink, India, lt. l. cut. 25.
Barleria (*I. Barreller*, a celebrated botanist at Paris.)
lupulina hop-headed, stove E. shrub, 2 ft, Aug. yellow Mauritius, pt. l. cut 461
Eranthemum (*Ear*, spring, *anthos*, a flower.)
fæcundum ever-blowing, stove E. shrub, 2 ft, all-seas, lilac, Brazil pt. l. cut 564
Ruellia (*John Ruelle* of Soissons, bot. physician to Francis 1st.)
Sabiniana Sabines, stove E. Shrub, 2 ft April to Aug. blue, India, lt. l. cut 118

ASCLEPIADEÆ.

- Caralluma* (Its Indian name.)
crenulata round-notched, dry stove shrub, 6 in. br. and yel. E. Ind. lt. l. cut 410

BERBERIDEÆ.

- Berberis* Berberry (*Berbey's*, its Arabic name.)
dulcis sweet-fruited, hardy ev. shrub, 8 ft. March, yel. Magellan, lt. l. lay 27.
glumacea glumaceous, hardy, dec. shrub, 4 ft. April and May white, Japan, lt. l. pt. lay, 77.
Epimedium Barren Wort (growing in Media, retained by Linneus.)
diphyllum two leaved, hardy per. April and May, white, Japan, lt. l. divis. 805.
Mahonia, (Bernard M'Mahon of N. America, lover of Bot.)
diversifolia different-leaved, hardy evr. shrub, 10 ft. mar. April, yellow, Monte Video. l. p. cut, 26.

BIGNONIACEÆ.

- Bignonia* Trumpet-flower (Abbe Bignon, librarian to Louis 14th.)
gracilis slender, stove climber, 50 ft. April, yellow, S. America, lt. l. cut. 77.

BORAGINEÆ.

- Tournefortia* (I. P. de Tournefort, the celebrated French bot.)
heliotropioides heliotrope-like, stove shrub, 2 ft. May, lilac, B. Ayres, lt. l. c. 168.

CACTEÆ.

- Mammillaria* (Mamma, the nipple, tubercles.)
tenuis taper, dry stove shrub, 6 in. white, May, peat and lime, rubbish off. 754.
Pereskeo Barbadoes Gooseberry (N. F. Pereskus, lover of bot.)
Bleo, rose-coloured, dry stove shrub. 5 ft., Oct. to Jan. rose, Mexico, l. pt. ct. 409

COMPOTITÆ.

- Centroclinium* (*Kentron*, sharp-point, *Kilne* bed.)
reflexum reflexed-scaled, stove an. 2 ft. August, rose, Peru, lt. l. seeds. 267.
appressum appressed scaled, stove evr. shrub, 2 ft. June, rose, lt. l. seeds 267.

Madia, (*Madi*, its name in Chile.)

- elegans* elegant, hardy an. 18 in. August, yel. N. W. America, co. seeds 315
Vernonia (*W. Vernon*, a bot. traveller in N. America.)
axilliflora axillary-flowered, stove evr. shrub, 18 in. all-sea. lt. l. c. 26, 366.

CAMELLIÆ.

- Camellia* Japan rose, (*G. J. Kamel* or *Camellusa* Jesuit.)
japonica compacta close fld. gre. evr. shrub, 10 ft. Feb. Mar. pt. l. inarch 71
Reevesiana gre. evr. shrub, 10 ft. Feb. March, pt. l. inarch 609
Sweetiana Sweets, gre. evr. shrub, 10 ft. Feb. pt. l. inarch. 462.

CARYOPHYLLÆ.

- Silene* (*Sailon*, salvia, viscid frothy moisture of the stalks.)
laciniata cut petalled, gre. per. 18 in, July Mexico, lt. l. seeds, 212.

CAMPANULACEÆ.

Lobelia (*M. Lobel*, a celebrated bot. author and physician.
robusta thick-stemmed, stove per. 3 ft. Aug. Hayti, lt. l. division, 462.

CAPRIFOLIACEÆ.

Caprifolium Honey Suckle (*Poetic*, *Goat leaf*, climbs like a goat.)
occidentale, western, hardy climbing shrub, 20 ft. June, com. cut. 315

CORDIACEÆ.

Cordia grandiflora, stove shrub, pale lilac, 611.

CRUCIFEREÆ.

Hesperis speciosa, hardy per 6 inches, rose and purple, l. division, 462.

DILLENIACEÆ.

Hibbertia Cunninghami greenhouse evergreen shrub, 3 ft. peat, cut. 755.

EPACRIDEÆ.

Dracophyllum capitatum, greenhouse evr. shrub, 3 ft. blue and white cut, 755.

Eparis nivalis, frame shrub, 2 ft. white pt. cut, 663.

Sphenotoma capitata, greenhouse evr. shrub 2 ft. blue and white, pt. ct. 711.

ERICAÆ.

Andromeda polifolia revoluta, hardy shrub, 1 ft. pink, pt. lay 170.

polifolia grandiflora, hardy shrub, 1 ft. white and pink, pt. lay, 118.

Arbutus mucronata, gr. trailing shrub, 1 ft. white, l. pt. lay, 117.

pilosa, hardy evr shrub, white and brown, pt lay, 712.

Azalea nudiflora scintillans. gre Dec shrub, 4 ft, orange and scarlet pt l lay 315

Calendulacea stapletoniana, hardy Dec shrub, 4 ft. rose pt l lay, 23.

Erica villosiuscula, gre evr shrub, 3 ft pink, p cut, 755.

vestita blanda, gre evr shrub, 2½ ft pink, pt cut, 119.

Beaumontiana gr evr shrub, 1 ft white, pt ct, 25.

undulata, gr evr shrub, 1 ft rose, pt cut, 519.

Rhododendron alta-clerense, hardy evr shrub, 15 ft pt lay, 23.

pulchrum, gr evr shrub, 3 ft rose pt lay, 267.

Farreræ, hardy evr shrub, 3 ft lilac, pt lay, 27.

Carton's, hardy evr shrub, 3 ft lilac, pt lay, 266.

ornatum, hardy evr shrub, orange and red, pt l, 519.

album, hardy evr shrub, 20 ft pt lay 610,

ESCALLONIEÆ.

Escallonia montevidensis, gr. evr shrub, 6 ft white, pt l cut, 367.

FUMARIACEÆ.

Dactylicapnos thalict trifolia, frame per climber, 3 ft yel br lt l seeds 368.

GALACYNEÆ.

Francoa appendiculata, hardy per 2 ft rose pt l division, 663.

GERANIA CEÆ.

Geranium albiflora, hardy per 18 inches, whitish, common, division, 367.

GROSSULACEÆ.

Ribes inebrians, hardy Dec shrub, 3 ft white, co, cut, 409.

speciosus, hardy Dec shrub, 4 ft. crimson, cut, 663.

JASMINEÆ.

Jasminum, *Wallichianum*, hardy evr shrub, 10 ft yel lt l cut, 23.

LEGUMINOSÆ.

Acácia (*Akaza*, to sharpen; many species thorny)

pentadinia fern-leaved.—Gre E. Shrub, five feet, orange and yellow, New Holl, pt. l. cut. 711.

Adésmia (*A*, without, *desmos*, a bond; stamens free)

microphylla, small-leaved.—Gre Shrub, two feet, various seasons, yellow Val-paraiso, lt. l. cut. 26.

Cassia (*Katsa*, to tear off; bark stripped from the tree)

Herbertiana Herbert's, stove E. shrub, nine feet, November, yellow, Barbadoes, l. pt. seeds. 116.

Chorizèma (*Choros*, dance, *zemia*, annoyance)

triangulære triangular.—Gre E. shrub, eighteen inches, April to June, Or. N. Holl, pt. cut. 662.

ovata, ovate, gre E. shrub, 2 ft. Apl. scarlet and yellow, N. Holl, l. pt. cut 755

Dillwynia (*L. W. Dillwyn*, a celebrated botanist)

glycinifolia, glycine-leaved, gre. ev. shrub, 2 ft. orange, N. Holl. l. pt. cut. 711

Glycine (*Glyks*, sweet, leaves and roots of one of the species)
 bileba, two-lobed, gre. clbg. shrub, 20 ft. violet, Mexico, loam & peat, seeds 24
 Gompholòbium (*Gomphos* wedge, *lobos*, pod; shape)
 Knightianum, Knight's, gre. shrub, 9 inches, Aug. Sept. rose, N. Holl. pt. 1.
 seeds. 367.

Hòvea (*A. P. Hove*, a Polish botanist)
 lanceolata linearis linear-leaved, gre. ev. shrub, 3 ft. March, purple, N. Holl.
 pt. 1. seeds. 116.
 villòsa shaggy, gre. ev. shrub, 3 ft. April, purple, New Holl. peat, cut. 662
 chorozemæfolia, chorozema-leaved, gre. ev. shrub, 3 ft. March, purple, New
 Holl. 1. pt. cut. 754.

Lathyrus (*La*, augment, *thouros*, any thing exciting, quality)
 decaphyllus, ten-leaved, hardy per climber, 4 ft. June, red and lilac, N. Amer.
 lt. 1. seeds. 367.

Lòtus, Bird's-foot Trefoil, (probably of Egyptian origen)
 arenarius sand, hardy trailing annual, 4 in. Aprl. yel. Teneriffe lt. 1. seeds 518
 Lupinus, Lupine, (*Lupus*, a wolf; impoverishes the soil)
 Marshallianus, Marshall's, hardy per, 5 ft. July to Oct. blue, hybrid, lt. 1. cut.
 and seeds. 518.

Sabiniànus Sabine's, hardy per, 3 ft. May, yellow, Columbia, lt. 1. seeds. 168.

Onònis Rest-harrow, (*Onos*, an ass, *onema*, to delight, grateful to)
 pedunculàris peduncled, frame per. 1 ft. April, white & rose, lt. 1. seeds. 212.

Pultenæa (*W. Pulteney*, M. D. a botanical author)
 mucronata, mucronate-levd, gre. per, 2 ft. April, yel. N. Holl. lt. 1. seeds. 118

LOBELIACEÆ.

Lobelia (*M. Lobel*, celebrated botanical author and physician)
 hypocrateriformis, salver-fld. gre. an. 1 foot, Sept. purple, peat, seeds. 25.
 speciosa, Low's purple, frame per. 2 ft. May to Oct. purple, pt. 1. div. 212.
 robusta, thick stemmed, stove per. 3 ft. Aug. purple, Hayti, lt. 1. division. 462

MALVACEÆ.

Hybiscus Genevi, stove evr. shrub, 15 ft. rose and purple, lt. 1. cut. 518.
 splendens, stove evr. shrub, 5 ft. Sept. rose orange, rich l. cut. 712.
 Palavia rhombifolia, rhomb-levd, fr. an. 1 ft. June to Sept. rose, Co. seeds 168
 Sida rosea, stove evr. shrub, 5 ft. October, rose, Brazil, pt. 1. cut. 519.
 aurea, stove evr. shrub, 5 ft. Sept. orange, India, rich, l. cut. 755.

MELASTOMACEÆ.

Arthrostemma nitida, gre. evr. shrub, 2 ft. July, lilac, B. Ayres, pt. 1. cut. 462
 Osbeckia nepalensis, stove shrub, 18 inches, Aug. white, Nepal, pt. 1. cut. 409

MELANTHACEÆ.

Trillium discolor, hardy per. 9 inches, May, green, Georgia, pt. 1. div. 168.

MYRTACEÆ.

Bæckea saxicola, gre. shrub, 6 inches, July, Aug. rose, N. Holl. pt. cut. 610.
 Couroupita guianensis, stove shrub, 70 ft. yellow and lilac, rich l. 609.

LABIATEÆ.

Audibertia incana, hardy shrub, 18 inches, July, Sept. blue, Co. seeds. 367.
 Aphanochilus blandus, stove per. 2½ ft. summer, green, Nupel, Co. 1. seeds 117
 Salvia foliosa, gre an, 18 inches, all season, blue, Mexico, Co. seeds. 116
 strictiflora, stove evr shrub, 3 ft. Dec. br. & red, lt 1, cut 411
 Grahamsi Graham's, gre evr shr 4 ft July to Oct. red, lt 1 cut 518

MELIACEÆ.

Turræa ? pinnata, stove evr shr 15 ft ? March, rose, Silhet, 1 pt cut 23

ONAGRAREÆ.

Fuchsia baccillaris, gre dec shrub, 5 ft, summer, rose, Mexico, pt 1 cut 461
 Œnothera anisoloba, hardy per, 2 ft, June, white, Co. lay seeds, 117, 461

OXALIDEÆ.

Oxalis Deppii, frame per 3 inches, Mar Nov copper red, Mexico, pt Off 27

PRIMULACEÆ.

Anagallis Webbiana, frame evr trailer, 6 inches, May to Nov, blue, Co. cut 411
 Primula sibirica, frame per, 4 inches, June, July, rose, Siberia, co, division 663
 verticillata, frame per, 1 ft, June July, yellow, Arabia, pt 1 div 712

PASSIFLOREÆ

Tacsonia pinnatistipula, frame climb. shrub, 10 ft. rose, Chile, lt. 1. cut. 712

PITTOSPOREÆ.

- Pittosporum Angustifolium*, gre evr shrub, 5 ft. yellow, N. Holl. l. pt. cut, 806
cornifolium, gre evr shrub, 3 ft, brown, N. Z. ea pt cut 610
Sollya heterophylla, gre climber, 5 ft. July, blue, N. Holland pt. l cut 367

POLYGALEÆ.

- Monnina obtusifolia* gre evr shrub, 2 ft. June, reddish purple, Peru, pt l s. 316

POLEMONIACEÆ.

- Phlox aristata*, frame per. 6 inches, white, Carolina, pt. & loam, cuttings 213

PROTEACEÆ.

- Grevillea caleyi*, gre evr shrub, 70 ft. orange, Moreton Bay. l pt cut. 410
planifolia, gre evr shrub, 2 ft Apl & May, rose, N. H. l pt cut 213
robusta, gre tree, 100 ft, June, Sept, red orange, pt l cut 755
Hemiclidia Baxteri, gre evr shrub, 3 ft, June, yellow pt l cut 266

RUTACEÆ.

- Dictamnus angustifolia*, hardy per, 2 ft, fl lilac, July, Altai, lt l seeds 26
Galipea odoratissima, stove evr shrub, 2 ft May, white, l pt cut 76

RUBIACEÆ.

- Houstonia longifolia*, hardy per, 4 in, purple, peat, 168.
Rubus spectabilis, hardy Dec, shrub, 4 ft, red, l pt lay, 76.

RANUNCULACEÆ.

- Aquilegia Garnieriana*, hardy per 18 inches, purple, com. division 78.
Pæonia albiflora Pottsii, hardy per 3 ft crimson, lt l 168.
officinalis anemoneflora, hardy per, 2 ft crimson, common, 712.

ROSACEÆ.

- Potentilla missourica*, hardy per, 1 ft, yel, common division, 23
Rosa Clare's, wall evr shrub, 6 ft crimson, com cut. 168.

RHAMNEÆ.

- Soulangia rubra*, gre evr shrub, 2 ft brick red, pt l ct, 565.

SARRACENIÆ.

- Sarracenia minor*, Frame per 6 in pur and gr bog division 519.

STYLIDEÆ.

- Stylidium fasciculatum*, gre shrub, 6 inches, pink, pt seeds, 315.

SALICARIÆ.

- Lagerstrœmia indica rosea*, rosy, gre evr shrub, 12 ft Aug and Sep, l cut, 368

SOLANEÆ.

- Salpiglossis Barclayana*, Barclay's, frame, bien, 3 ft brown red, lt l, 169
integrifolia entire-leaved, gre annual, 1 ft, July, rose, lt l s, 267.
atropurpurea dark purple, frame, bien, 3 ft, purple rich l, 711.

SCROPHULARINEÆ.

- Browallia grandiflora*, gre annual, 2 ft yellow, pt l seeds 24
Calceolaria angustiflora, gre per, 18 inches, yellow pt cut, 117.
bicolor, gre per, 2 ft, yellow bluish white, lt l cut, 461.
chiloensis, frame shrub, 2 ft, yellow, rich l cut, 409.
connata, gre per, 4 ft, yellow, lt l seeds, 565.
Martineauæ, hardy per, 2 ft, yellow, common, division, 806.
Wheeleri, frame per, 1 ft purple, pt l division, 411.
Youngii, gre per, 2 ft, ochre and dark, rich l division, 212.

- Gratiola tetragona*, frame per, one foot, blue, pt l division, 411.

- Mimulus perfoliata*, hardy per, 2 ft, yellow, pt l seeds, 24, 316.

- Schizanthus Hookeri*, hardy bien, 2 ft, rose, lt l seeds, 24.

- Stemodia chilensis*, frame per, 1½ ft, blue, pt l division, 409.

TROPÆOLEÆ.

- Tropæolum tricolorum*, gre per, 3 ft, vermillion, lt l cut, 663.

THYMELEÆ.

- Pimelea intermedia*, gre per, 2 ft, white, pt, common, 168.
diosmæfolia, gre shrub, 1 ft, rose, pt cut, 78.

UMBELLIFERÆ.

- Aracacia esculenta*, stove per, 3 ft. brownish red, rich l division 117.

URTICEÆ.

- Dorstenia tubicina*, stove per, 6 inches, green, pt l division, 461.
Ficus urophylla, stove evr shrub, 2 ft, India. pt l common, 26.

VERBENACEÆ.

- Lantana nivea mutabilis*, stove evr shrub, 5 ft, yel rose, pt 1 cut, 267.
Selago Gillii, gr shrub, one foot, rose, lt, cuttings, 610.
Verbena venosa, frame per. $2\frac{1}{2}$ feet, rose, lt 1 seeds, 367.

CLASS II.—MONOCOTYLEDONOUS PLANTS OR ENDOGENES.

AMARYLLIDÆ.

- Alstromeria Neillii*, gr per, 2 feet, rose, 1 pt offsets, 212.
 Salsilla, stove per, crimson and yellow 1 pt offsets, 25.
 hæmanthe, gr per, orange and red, loam and peat, offsets, 756.
 oculata, frame per, rose, loam and peat division, 807.
Coburgia fulva, gr per, 18 inches, tawny orange, pt 1 roots, 565.
Gastronema pallida, gr per, white and rose, pt, off, 565.
Habranthus roseus, frame per, 6 inches, red and orange, rich 1 off, 24.
 pumilus, gr per, six inches, red, lt 1 offsets, 410.
 phycelloides, gre per, 9 inches, scarlet, rich 1 offsets:
Narcissus stellaris, hardy per, april and May, white and crimson, co off, 411.

ASPHODELEÆ.

- Anthericum, plumosum*, frame per, 1 ft, white, com. division, 77.
Asphodelus luteus sibircus, hardy per, 3 ft, yellow, common, roots, 665.
Camassia esculenta, hardy per $1\frac{1}{2}$ ft, dark purple, pt, off, 520.
Geitonoplesium cymosum, gr climber, one foot, green, pt 1 cut, 410.
Ornithogalum fimbriatum, hardy per, 6 inches, white, com, offs. 25.
 bifolium, frame per, white, lt, offsets, 565.
Trichopetalum gracile, frame per, 3 feet, greenish white, lt 1, offsets, 897.

BROMELIACEÆ.

- Æchmea mertensii*, stove per, yellow and rose, 1 pt, division, 896.
Billbergia bicolor, stove per, scarlet and yellow, Brazil, rich 1 suck 611

CANNEÆ.

- Calathea macilata*, stove per, yellow, Rio Jan, sandy loam division 461
Canna patens, stove per, May, red and yellow, 2 ft Rio rich 1 roots 26

IRIDEÆ.

- Crocus vernus leucorhyncus*, hardy per, 6 inches, white and blue, Co offs 23
 pictus, hardy per, 4 inches, March, purple white, Co offs 168
 Imperati, hardy per, 4 inches, Febrbary March, lilac, lt 1 offs 27
 reticulatus, hardy per, 4 inches, orange, brown, com 1 offs 665
Gladiolus cochleatus, gre per, 18 inches, March, white, red, 1 pt off 520
 natalensis, gre per 4 ft Avgust' scarlet yellow, pt 1 offs 612
Iris nertchinskia, hard per, blue and yellow, rich 1 division 756
 bicolor, hardy per, 18 inches, May July, yellow brown, p Co off 23
Sparaxis lincata, gre per, 6 inches, Sept, white pink, C G Hope pt 1 off 411
Tritonia odorata, frame per, 1 foot, May, yellow, C G Hope, pt off 611

ORCHIDEÆ

- Aceras secundiflora*, gre per, 1 foot, red, Madeira, loam pt, roots 756
Aerides cornutum, stove per, 1 foot, July, India, pt rotten wood, division 520
Angræcum eburneum, stove per, white, Madagascar, pt rotten wood div 756
Brassavola elegans, stove per, 1 ft rose and purple, pt rotten wood, div 166
 nodosa, stove per, 1 foot, yellow and green, pt rotten wood, div 166
Broughtonia sanguinea, stove per, 18 inches, red or, pt rotten wood, div 25
Cattleya guttata, stove per, 1 foot, green, white and pur, pt rot wood, div 23
Coryanthes maculata, stove per, 1 ft June yel pur pt rot wood, div 212
Cypripedium macranthos, 9 inches, hardy per, purple, Siberia, pt, roots 806
Dendrobium speciosum, stove per, 1 ft, June Aug yellow, pt rot wood div 25

- Epidendron variegatum*, stove per, 1 ft, green yellow, pt rotten wood div 565
odoratissimum, stove per, 1 ft, green yel, pt rotten wood div 23
Eulophia Maekaiana, stove per, 2 ft, green blue, br, pt rotten wood div 116
Govenia superba, stove per, 1 ft, March, yellow, Xalapa, lt l division 78
Habernaria cordata, stove per, yellowish green, Madeira, pt l. division 611
Herminium cordatum, stove per, yellowish green, Nov. Madeira, pt l div 665
Maxillaria tetragona, stove per, 9 in, green purp, pt rotten wood div 116, 520
pieta, stove per, 9 inches, orange purple, pt rotten wood, div 566
viridis, stove per, 6 inches, green, purple, pt rotten wood, div 665
placantha, stove per, 9 inches, green br, pt rotten wood, div 714
gracilis, stove per, 4 inches, red yellow, moss, and lt l, div 714
Oncidium crispum, stove per, 1 ft June, yel br, Brazil, moss & peat, div 807
Pterostylis Banksii, stove per, July Aug, yellow, New Zealand, pt l roots 714
Sarcanthus guttatus, stove per, 1 ft, Apl, white, violet & rose, pt rot wood 212
Stanhopea eburnea, stove per, 1 ft, July, green & white, pt rot wood, div, 806
Zygopetalon crinitum, stove per, 1 ft, June, July, bl gr yel, pt rot wood, div 25

TULIPACEÆ.

Tulipa Bonarotiana, hardy per, 18 inches, Apl, red varieg, Italy, Co. off's 213
Oculus Solis, præcox, hardy per, crim blk, Apl, r mld, Italy off 24,78

 ABBREVIATIONS.

<i>An.</i> Annual	<i>blsh.</i> bluish	<i>br.</i> brown
<i>Bien.</i> biennial	<i>bl.</i> blue	<i>co.</i> common soil
<i>D.</i> deciduous	<i>blk.</i> black	<i>cut.</i> cuttings
<i>evr.</i> evergreen	<i>crim.</i> crimson	<i>div.</i> division of roots
<i>gre.</i> greenhouse	<i>gr.</i> green	<i>lay.</i> layers
<i>har</i> hardy	<i>purp.</i> purple	<i>lt. l.</i> light loam
<i>in.</i> inches	<i>varieg.</i> variegated	<i>pt. rot.</i> peat & rotten
<i>or.</i> orange	<i>wht.</i> white	<i>w.</i> wood
<i>per.</i> perennial	<i>yel.</i> yellow	<i>pt. l.</i> peat & loam

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